



Education to Employment: Designing a System that Works

McKinsey
Center for
Government

AUTHORS

Mona Mourshed
Diana Farrell
Dominic Barton

Visit our website:
mckinseysociety.com/education-to-employment
Join the conversation on Twitter:
[#mckinseysociety](https://twitter.com/mckinseysociety) [#mcke2e](https://twitter.com/mcke2e)

Scientist Chef
Doctor Pilot
Diver Porter
Engineer Welder



ACKNOWLEDGMENTS

The authors deeply thank the more than 8,000 education providers, youth, and employers whom we surveyed across nine countries during this research, and a further 70 with whom we engaged in detailed interviews. The authors are grateful to the substantial and committed contributions of our colleagues Tom Isherwood, Ali Jaffer, and Cheryl Lim, all of whom served as distinctive project managers during this work. Hayoung Kim, Kalani Leifer, Alice Nam, and Anisa Khadem Nwachuku rounded out our team with excellent thought leadership on critical issues. Denielle Sachs planted the seed of conducting a survey in our minds and helped create an environment that allowed the idea to flourish. Ivan Hutnik and Cait Murphy provided brilliant editing support and Nicholas Dehaney brought creative design to our work, while John-Michael Maas developed our Web presence. The following colleagues provided valuable input and counsel throughout our effort: Yasmine Abouddrar, Ryan Adams, Byron Auguste, Eduardo Bolio, Francois Bouvard, Andres Cadena, Alberto Chaia, Marcos Cruz, Kito de Boer, Ian Gleeson, Andrew Goodman, Andrew Grant, Bryan Hancock, Kai Holleben, Bengi Korkmaz, Eric Labaye, Franz Paasche, Jörg Schubert, Katrin Suder, Mourad Taoufiki, and Ramya Venkataraman.

HELLO
MY NAME IS
MRS JOHNSON

I am
a teacher

08 INTRODUCTION

TWO CRISES, ONE PARADOX

14 EXECUTIVE SUMMARY

22 CHAPTER ONE

A CONGESTED HIGHWAY

1.1 Critical intersection 1: Enrolling in Postsecondary Education p25
1.2 Critical intersection 2: Building Skills p36 | 1.3 Critical intersection
3: Finding Employment p40

56 CHAPTER TWO

LEARNING BY EXAMPLE: STORIES OF SUCCESS

2.1 Enrollment p59 | 2.2 Building Skills p66 | 2.3 Finding a job p72

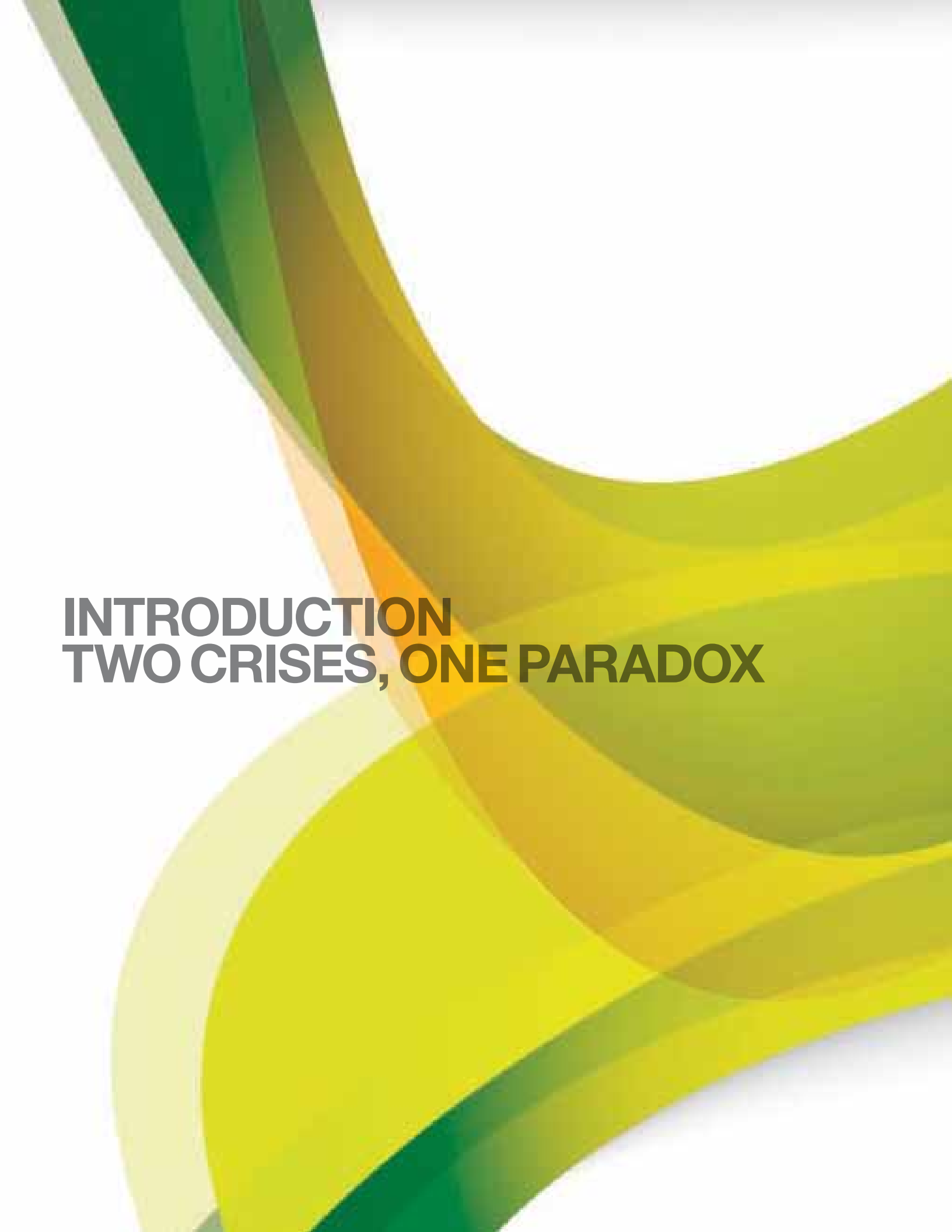
82 CHAPTER THREE

CREATING A NEW SYSTEM

3.1 Improving the odds of success p85
3.2 Scaling Up Success p91

98 ENDNOTES | 102 BIBLIOGRAPHY

104 APPENDICES

The background features a series of overlapping, flowing, wavy bands in various shades of green and yellow, creating a sense of movement and depth. The colors range from deep forest green to bright, sunny yellow, with some areas appearing as gradients.

INTRODUCTION

TWO CRISES, ONE PARADOX

In Japan, an estimated 700,000 young people, known as hikikomori, have withdrawn from society, rarely leaving home. In North Africa, restless youth were at the vanguard of the demonstrations that toppled governments in Egypt and Tunisia. In the United States, the still-faltering economy has been so difficult on Generation Y that there is even a television show, Underemployed, about a group of 20-something college graduates forced into dead-end or unpaid jobs. It is a comedy, but of the laughter-through-tears variety.

*Where should
I go?*

» **These examples hint at two related global crises: high levels of youth unemployment and a shortage of people with critical job skills. Leaders everywhere are aware of the possible consequences, in the form of social and economic distress, when too many young people believe that their future is compromised. Still, governments have struggled to develop effective responses—or even to define what they need to know.**

Worldwide, young people are three times more likely than their parents to be out of work. In Greece, Spain, and South Africa, more than half of young people are unemployed, and jobless levels of 25 percent or more are common in Europe, the Middle East, and Northern Africa. In the Organisation for Economic Co-operation and Development (OECD) countries, more than one in eight of all 15- to 24-year-olds are not in employment, education, or training (NEET).¹ Around the world, the International Labour Organization estimates that 75 million young people are unemployed. Including estimates of underemployed youth would potentially triple this number.² This represents not just a gigantic pool of untapped talent; it is also a source of social unrest and individual despair.

Paradoxically, there is a critical skills shortage at the same time. Across the nine countries that are the focus of this report (Brazil, Germany, India, Mexico, Morocco, Turkey, Saudi Arabia, the United Kingdom, and the United States), only 43 percent of employers surveyed agreed that they could find enough skilled entry-level workers. This problem is not likely to be a temporary blip; in fact, it will probably get much worse. The McKinsey Global Institute estimates that by 2020 there will be a global shortfall of 85 million high- and middle-skilled workers.

If young people who have worked hard to graduate from school and university cannot secure decent jobs and the sense of respect that comes with them, society will have to be prepared for outbreaks of anger or even violence. The evidence is in the protests that have recently occurred in Chile, Egypt, Greece, Italy, South Africa, Spain, and the United States (to name but a few countries). The gap between the haves and the have-nots in the OECD is at a 30-year high, with income among the top 10 percent nine times higher than that of the bottom 10 percent.³

In order to address youth unemployment, two fundamentals need to be in place: skill development and job creation. This report focuses on skill development, with special attention to the mechanisms that connect education to employment.

Clearly, employers need to work with education providers so that students learn the skills they need to succeed at work, and governments also have a crucial role to play. But there is little clarity on which practices and interventions work and which can be scaled up. Most skills initiatives today serve a few hundred or perhaps a few thousand young people; we must be thinking in terms of millions.

Why don't we know what works (and what does not) in moving young people from school to employment? Because there is little hard data on the issue. This information gap makes it difficult to begin to understand what practices are most promising—and what it will take to train young people so that they can take their place as productive participants in the global economy.

One way of looking at this is to think about where school-system reform was a dozen years ago. Before 2000, policy makers, educators, parents, and students had little understanding of how to improve school systems, or how school systems across the world performed in comparison with one another.



in sales

That changed with the creation of the Program for International Student Assessment (PISA). Administered through the OECD, PISA tested the abilities of more than 300,000 15-year-olds across 42 countries.⁴ The results were groundbreaking. Finland and Canada proved to have the best-performing systems in reading in that initial test. Then PISA went a step further, collecting detailed and wide-ranging data on educational practices by country. This allowed nations to assess which interventions were successful across the board and which were dependent on the context of specific systems. School-system reform is still a work in progress, but with good information in hand, countries have a foundation from which to build.

With regard to education to employment, there is nothing comparable to PISA. There is no comprehensive data on the skills required for employment or on the performance of specific education providers in delivering those skills. Existing data is limited and cannot be compared across countries.

This was a major challenge in compiling this report; another was the heterogeneous and fragmented nature of job-training systems. Skills training takes many different forms and is provided by many different stakeholders, including vocational schools, universities, companies, industry associations, and local and national governments. Multiple entities are involved—in government alone, responsibility typically is shared among education, labor, and industry departments. No one has a bird's-eye view of the whole process. Trying to develop an understanding of education to employment, then, is akin to comparing apples to cherries, even within the same country.

To build a knowledge base, we studied more than 100 approaches in 25 countries. As a result, we have developed a truly global perspective on what characterizes successful skills-training systems. To build a strong empirical base, we also surveyed more than 8,000 young people, employers, and education providers in the nine countries that are the focus of this research.

The education, employment, social, and political systems of these nine countries span a wide spectrum. We observed, however, that certain preferences and practices pertain across borders. By studying these commonalities and outcomes, we were able to define global segments of young people and employers in much the same way that consumer-product companies define segments of different kinds of shoppers. We began to see which attitudes and behaviors mattered most. This analysis is central to the way we came to understand the issue, and it represents a new way of thinking about how to address the twin crises of joblessness and the skills shortage.

The journey from education to employment is a complicated one, and it is natural that there will be different routes. But too many young people are getting lost along the way. This report, the first of its kind for McKinsey, is not the last word on the subject. We believe, however, that it is a good start in beginning to fill the knowledge gap and thus provides a useful road map for the future.



EXECUTIVE SUMMARY

- **Seventy-five million youth are unemployed**
- **Half of youth are not sure that their postsecondary education has improved their chances of finding a job***
- **Almost 40 percent of employers say a lack of skills is the main reason for entry-level vacancies****

Around the world, governments and businesses face a conundrum: high levels of youth unemployment and a shortage of job seekers with critical skills. How can a country successfully move its young people from education to employment? What are the problems? Which interventions work? How can these be scaled up? These are the crucial questions.

In this report, we attempt to answer them. To do so, we developed two unique fact bases. The first is an analysis of more than 100 education-to-employment initiatives from 25 countries, selected on the basis of their innovation and effectiveness. The second is a survey of youth, education providers, and employers in nine countries that are diverse in geography and socioeconomic context: Brazil, Germany, India, Mexico, Morocco, Saudi Arabia, Turkey, the United Kingdom, and the United States.

We started this research recognizing the twin crises of a shortage of jobs and a shortage of skills. In the course of it, though, we realized we needed to take into account another key shortage: the lack of hard data. This deficiency makes it difficult to even begin to understand which skills are required for employment, what practices are the most promising in training youth to become productive citizens and employees, and how to identify the programs that do this best. The state of the world's knowledge about education-to-employment is akin to that regarding school-system reform a dozen years ago, prior to groundbreaking international assessments and related research. We hope this report helps fill this knowledge gap.

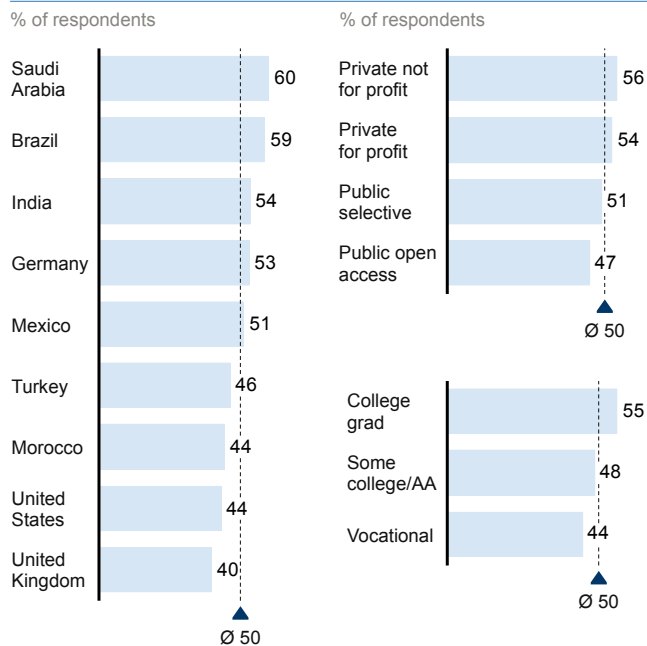
A young man with a red tilak on his forehead is sitting on a stone ledge. He is wearing a yellow shawl over a grey sweater and has white headphones around his neck. He is looking off to the side with a thoughtful expression. The background shows a stone wall with some papers pinned to it.

From a Web designer

Exhibit 1

Only half of youth believe that their post-secondary studies improved their employment opportunities

Students who believe their postsecondary studies improved their employment opportunities¹



¹ My post-high-school education improved my chances of getting a job.

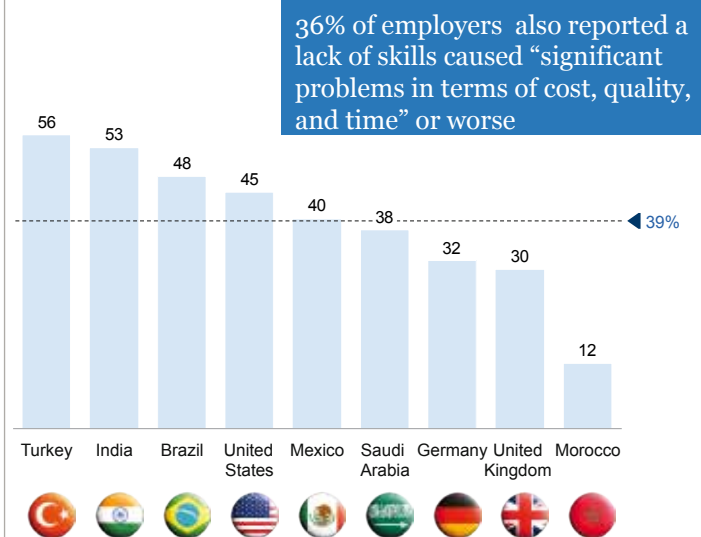
SOURCE: McKinsey survey, Aug-Sept 2012

Exhibit 2

39% of employers say a skills shortage is a leading reason for entry-level vacancies

Lack of skills is a common reason for entry-level vacancies

% of employer respondents



SOURCE: McKinsey survey, Aug-Sept 2012

The report's findings include the following six highlights:

1 Employers, education providers, and youth live in parallel universes. To put it another way, they have fundamentally different understandings of the same situation. Fewer than half of youth and employers, for example, believe that new graduates are adequately prepared for entry-level positions. Education providers, however, are much more optimistic: 72 percent of them believe new graduates are ready to work (Exhibit 3). The same disconnect occurs with regard to education; 39 percent of education providers believe the main reason students drop out is that the course of study is too difficult, but only 9 percent of youth say this is the case (they are more apt to blame affordability).

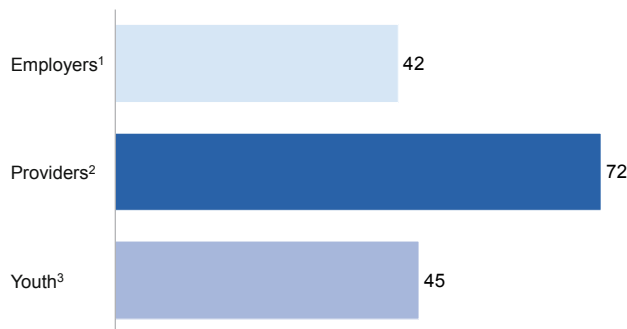
Why are the three major stakeholders not seeing the same thing? In large part, this is because they are not engaged with each other. One-third of employers say they never communicate with education providers; of those that do, fewer than half say it proved effective. Meanwhile, more than a third of education providers report that they are unable to estimate the job-placement rates of their graduates. Of those who say they can, 20 percent overestimated this rate compared with what was reported by youth themselves. Nor are youth any better informed: fewer than half say that when they chose what to study they had a good understanding of which disciplines lead to professions with job openings and good wage levels.

Exhibit 3

Stakeholders hold different views about the readiness of graduates for the job market

Agreement that graduates/new hires are adequately prepared

% of respondents



1 Overall, employees we hired in the past year have been adequately prepared by their prehire education and/or training.

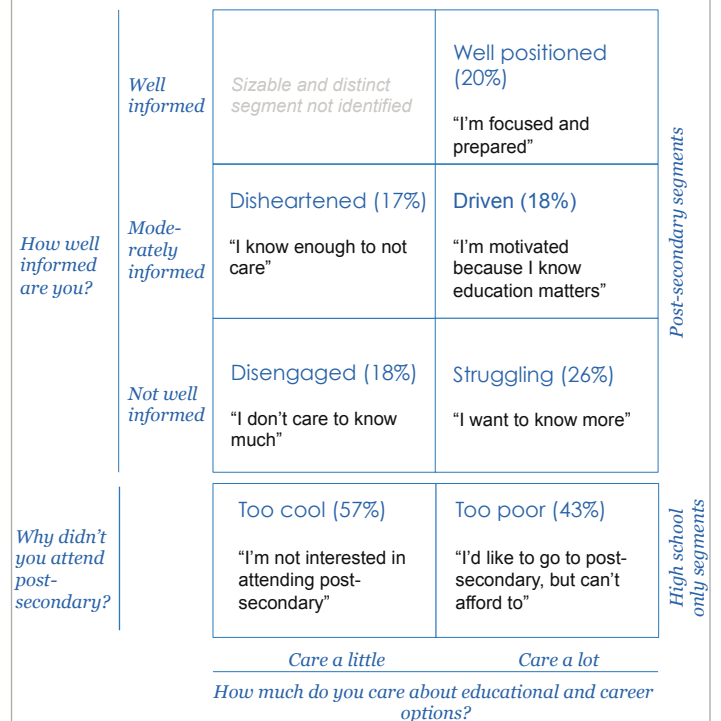
2 Overall, graduates from my institution are adequately prepared for entry-level positions in their chosen field of study.

3 Overall, I think I was adequately prepared for an entry-level positions in my chosen field of study.

SOURCE: McKinsey survey, Aug-Sept 2012

Exhibit 4

Seven distinct youth segments exist



SOURCE: McKinsey survey, Aug-Sept 2012

2. The education-to-employment journey is fraught with obstacles. In building our fact base, we began to think of the education-to-employment system as a highway with three critical intersections: (1) enrolling in postsecondary education, (2) building skills, and (3) finding a job.

There are significant challenges at each intersection. At the first (enrollment), cost is the top barrier, with 31 percent of high-school graduates indicating they did not continue their education because it was too expensive. Among those who do enroll, 46 percent are convinced they made the right choice in their selection of institution or field of study. At the second intersection (building skills), about 60 percent of youth say that on-the-job training and hands-on learning are the most effective instructional techniques, but fewer than half of that percentage are enrolled in curricula that prioritize those techniques. At the third intersection (finding a job), a quarter of youth do not make a smooth transition to work; their first jobs are unrelated to their field of study and they want to change positions quickly. In emerging markets, this number rose to as much as 40 percent.

3. The education-to-employment system fails for most employers and young people. Examples of positive outcomes in education to employment are the exception rather than the rule.

Based on our survey data, we identified three distinct groups of employers. Only one of them, accounting for less than a third of the cohort (31 percent), is successful in getting the talent it requires. What distinguishes these employers is that they reach out regularly to education providers and youth, offering them time, skills, and money. Of the two other segments, the first is minimally engaged (44 percent) and struggling the most to find the right workers, while the second (25 percent) is somewhat engaged but largely ineffectual.

As for young people, the system is not working for most of them, either. We asked youth a combination of attitudinal and behavioral questions to understand how they thought. On the basis of their answers, as well as their current employment status, we divided them into seven segments—five for those with postsecondary education and two for those without (Exhibit 4). Only two of the seven segments have a positive experience in the job market. They succeed when most do not because they actively manage their decisions about their education and career. The remaining segments range from those who have become disheartened (“I know enough to not care”) to those who are disengaged (“I don’t care to know more”) and those who are struggling (“I want to know more”).

Each of the employer and youth segments we identified has different outcomes and motivations; each requires a different set of interventions. We also found that the concentration and mix of these segments can vary significantly by country.

4 Innovative and effective programs around the world have important elements in common.

Two features stand out among all the successful programs we reviewed. First, education providers and employers actively step into one another’s worlds. Employers might help to design curricula and offer their employees as faculty, for example, while education providers may have students spend half their time on a job site and secure them hiring guarantees.

Second, in the best programs, employers and education providers work with their students early and intensely. Instead of three distinct intersections occurring in a linear sequence (enrollment leads to skills, which lead to a job), the education-to-employment journey is treated as a continuum in which employers commit to hire youth before they are enrolled in a program to build their skills.

The problem, then, is not that success is impossible or unknowable—it is that it is scattered and small scale compared with the need.

5 Creating a successful education-to-employment system requires new incentives and structures. To increase the rate of success, the education-to-employment system needs to operate differently, in three important ways.

First, stakeholders need better data to make informed choices and manage performance. Parents and young people, for example, need data about career options and training pathways. Imagine what would happen if all educational institutions were as motivated to systematically gather and disseminate data regarding students after they graduated—job-placement rates and career trajectory five years out—as they are regarding students’ records before admissions. Young people would have a clear sense of what they could plausibly expect upon leaving a school or taking up a course of study, while education

institutions would think more carefully about what they teach and how they connect their students to the job market.

Second, the most transformative solutions are those that involve multiple providers and employers working within a particular industry or function. These collaborations solve the skill gap at a sector level; by splitting costs among multiple stakeholders (educators, employers, and trainees), investment is reduced for everyone—an incentive for increased participation. Agreements such as nonpoaching deals can also boost employers’ willingness to collaborate, even in a competitive environment.

Finally, countries need system integrators (one or several) responsible for taking a high-level view of the entire heterogeneous and fragmented education-to-employment system. The role of the system integrator is to work with education providers and employers to develop skill solutions, gather data, and identify and disseminate positive examples. Such integrators can be defined by sector, region, or target population.

6 Education-to-employment solutions need to scale up. There are three challenges to achieving scale: first, constraints on the resources of education providers, such as finding qualified faculty and investing in expansion; second, insufficient opportunities to provide youth with hands-on learning; and third, the hesitancy of employers to invest in training unless it involves specialized skills. There are solutions for each.

In the first instance, coupling technology—the Internet and other low-cost outlets—and a highly standardized curriculum can help to supplement faculty and spread consistent instruction at a modest cost.

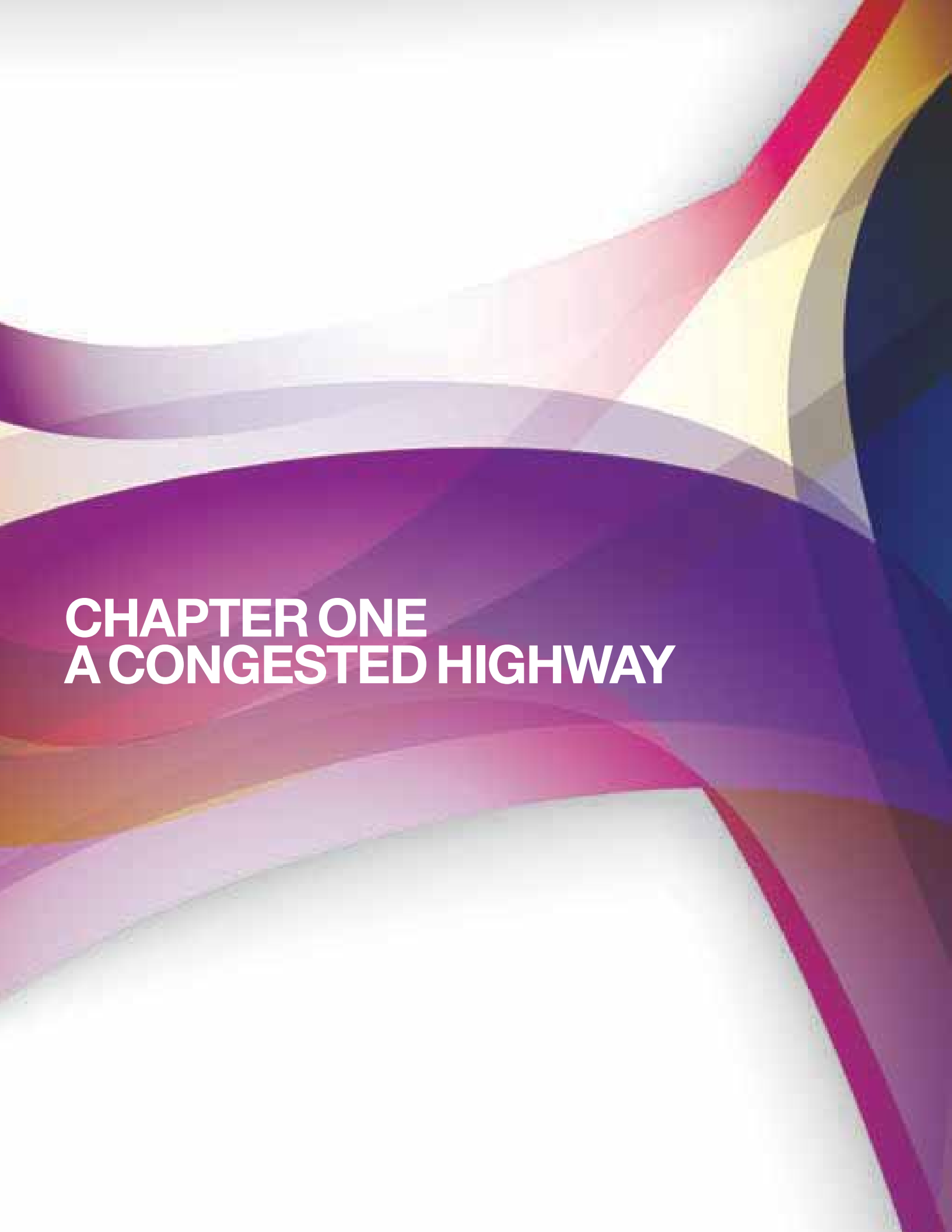
For the second challenge, apprenticeships traditionally have provided hands-on experience, but there are not enough spaces to meet demand. Technology, in the form of “serious games” and other kinds of simulations, can help here, too, by offering tailored, detailed, practical experience to large numbers at a comparatively low cost. Serious-game simulation could become the apprenticeship of the 21st century. In a sense, the future of hands-on learning may well be hands-off.

Third, employers often are willing to invest only in those specialized skills whose value they can fully capture; they do not want to spend money on employees who might take their expertise elsewhere. But for providers, it is expensive to develop solutions for every employer. One proven approach is to combine customization and scale by offering a standard core curriculum complemented by employer-specific top-ups.

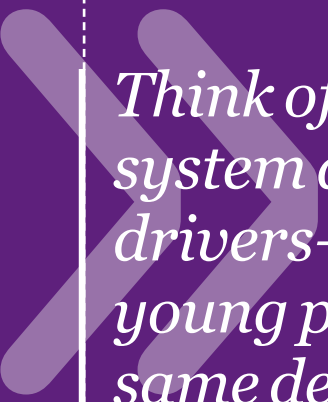
oooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooo

The passage from education to employment is a complicated one, with many different needs and requirements demanding negotiation along the way. It is inevitable, then, that there will be a variety of routes. What should concern us all is that far too many young people are getting lost along the way.

Our purpose in this study is to consider the journey from education to employment and to examine what can be done to improve it. By providing new information and analysis, we seek to help employers, education providers, governments, and young people begin to create a different and better system. This report is not a definitive road map, but it is a start and a structured call to action.



CHAPTER ONE **A CONGESTED HIGHWAY**



Think of the education-to-employment system as a highway, where three drivers—educators, employers, and young people—all want to get to the same destination. There are three critical intersections—when young people enroll in postsecondary education, when they build skills, and when they seek work. At every point, each driver needs to take account of the others to keep moving safely and efficiently. Our research, however, shows that doesn't usually happen. Instead, drivers don't take one another into account, proceeding obliviously in their own lanes, or they collide, leaving everyone worse off than when they started.

What Should I learn

✕ **As we look at the transition from education to employment, we see that there are three critical intersections: enrollment, building skills, and finding a job. Exhibit 1 (page 26) shows a way of visualizing these intersections and the relevant practices (inputs) that form the signposts.**

This visualization is useful because it integrates the vantage points of all three drivers and presents education-to-employment as a complex system with lots of different places to enter and exit, not as a straight road. One of our most striking findings is that at each intersection, the points of view of the different drivers are often so different from one another that it's difficult to believe they are on the same highway.

For example, fewer than half of youth and employers believe that new graduates are prepared adequately for entry-level positions. Among providers, though, 72 percent say they are. Similarly, while 39 percent of postsecondary educators believe that students drop out because the course of study is too difficult, only 9 percent of youth agree.¹ Even within groups, there are vast differences in attitudes and behaviors. In short, even if the drivers are on the same road, they don't seem to be looking at the same map. No wonder they are missing one another.

Let's look at each of the three critical intersections.

1.1 Critical intersection 1: Enrolling in postsecondary education

As young people approach this point, they need to make two related decisions. Should I go on? If so, what should I study, and where should I study it?

Choosing whether to continue school

Establishing how many young people go on to postsecondary courses (either academic or vocational), and what happens to them, is not easy. How countries define and measure the entry rates into such programs varies widely. Moreover, national figures often do not include on-the-job apprenticeships or count those who go directly from secondary school into work.

For this reason, it is common to make comparisons using the NEET rate (not in education, employment, or training). The social and personal costs of quashing the energies of youth are tremendous. So are the economic costs. The European Foundation for the Improvement of Living and Working Conditions issued a report in 2012 that estimates the cost of supporting the NEET population in Europe to be €153 billion (approximately \$200 billion), or 1.2 percent of European GDP.² The NEET rates of the countries in our study range from a low of 10 percent in Germany to 30 percent in Turkey³ (Exhibit 2). It's also important to keep in mind that in addition to the NEET rate, another significant percentage is either underemployed or otherwise dissatisfied with available choices.

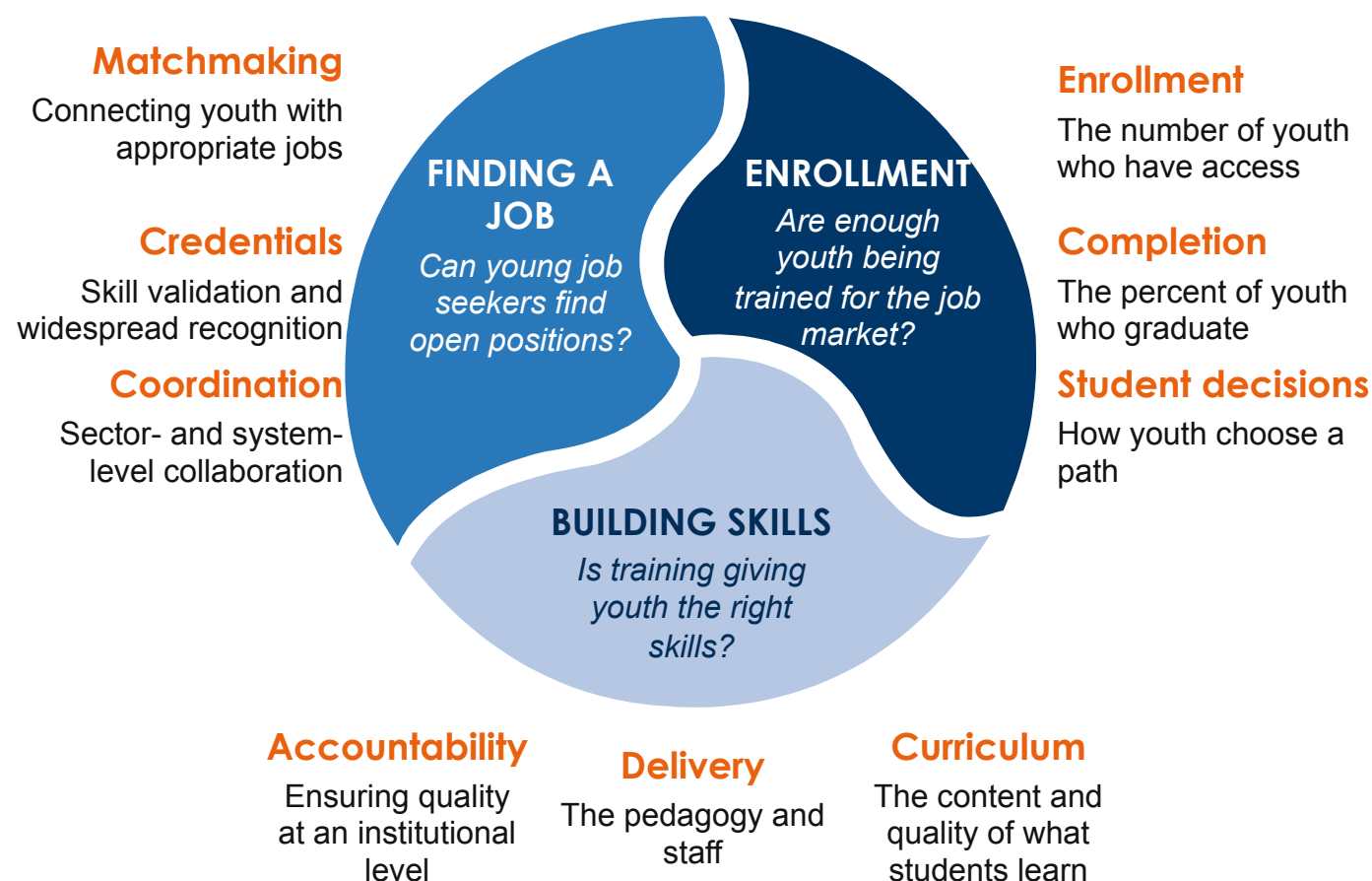
Our survey indicates that youth who do not pursue postsecondary education see themselves in one of two segments: those who cannot afford to and those who cannot be bothered to (see the box on youth segmentation). Unfortunately, both segments have poor outcomes, including high levels of unemployment.

The reasons for failing to continue one's education vary; for example, our survey shows that in Brazil, Mexico, and the United States, affordability is the most important factor, while in Germany, lack of

Exhibit 1

Our framework for exploring the education-to-employment system

Practices
(inputs)





I am
a banker

Exhibit 2

NEET rates among youth in OECD countries, 2011¹

% of population aged 15-24

¹ OECD represents weighted averages. Q2 2011 for Australia; all others represent Q1 2011.

SOURCE: OECD estimates based on national labor-force surveys

capacity is paramount. Turkish youth (and Indian youth, to a lesser extent) question whether further education will provide an economic return (Exhibit 3). We were surprised by this, because most research shows that further education makes economic sense.^{4,5} But if Turkish youth do not see the world this way, it is no wonder that they are more likely to turn off the highway at the first intersection. They are seeing signs that read “No additional value ahead.”

Nor are Turkish youth entirely wrong: while paying for postsecondary education in Turkey does bring net incremental value, the present value of that return is one of the lowest in the OECD (Exhibit 4).

There are also indications that even this low return is decreasing, particularly in the formal private sector.⁶

Exhibit 3

Cost matters everywhere, but value, lack of interest, and capacity also play a role in certain countries

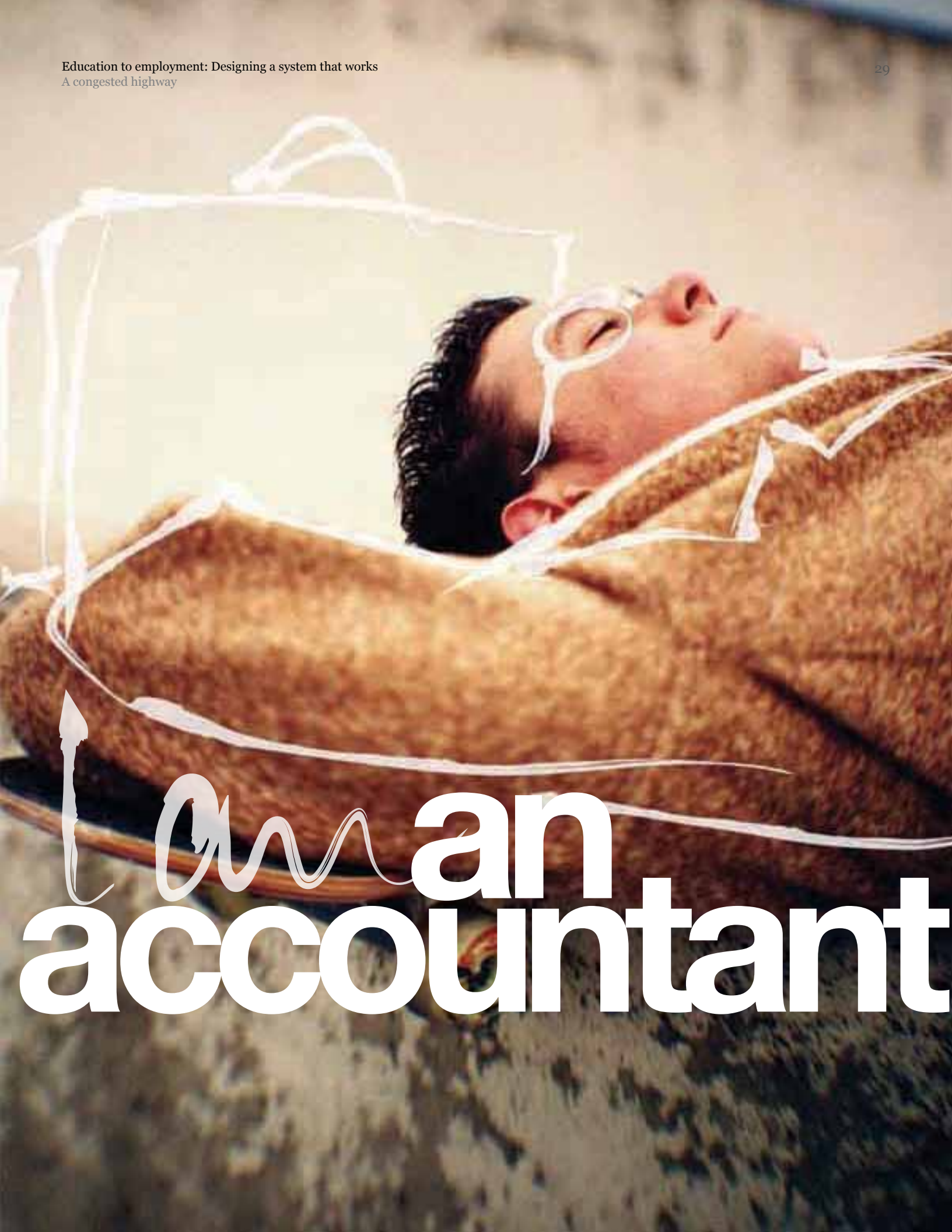
	Cost/need to work			Cost + value		Cost + lack of interest			Cost + capacity	
Reasons ¹	United States	Brazil	Mexico	Turkey	India	Saudi Arabia	United Kingdom	Morocco	Germany	Overall
Could not afford	48%	43%	24%	20%	18%	38%	35%	34%	17%	31%
No time to study due to work	16%	25%	29%	21%	10%	16%	18%	21%	19%	20%
Not interested in more education	11%	4%	5%	15%	16%	41%	24%	27%	7%	15%
Did not think it would add value	13%	10%	8%	21%	21%	22%	13%	11%	7%	13%
No program for interests	11%	16%	10%	13%	7%	15%	12%	8%	12%	12%
Insufficient capacity	5%	12%	8%	11%	14%	8%	9%	6%	25%	11%
No offerings in area	12%	5%	14%	9%	8%	17%	10%	10%	12%	11%
Not accepted to program of choice	6%	3%	10%	11%	14%	26%	10%	5%	10%	10%
Salary won't change	7%	5%	6%	20%	5%	10%	10%	0%	10%	8%
Family did not allow	7%	3%	5%	11%	14%	13%	8%	4%	7%	7%
Can get employment otherwise	6%	2%	6%	8%	5%	10%	9%	2%	7%	6%

¹ Why did you not enroll in post-secondary education or training?

SOURCE: McKinsey survey, Aug-Sept 2012

Turning to the findings of our India survey, we were struck by the comparative lack of confidence in the value of further education because the achievements of students from the country's elite management schools and engineering colleges are so well known. One explanation is that our survey looked at students from a wide variety of backgrounds, and respondents from India are among the most likely to state that their socioeconomic background will largely determine their future occupations and career.

Youth in Saudi Arabia also show a decided lack of interest in continuing their studies. In this case, the response might be related to the fact that many Saudi youth intend to work in the public sector, where postsecondary qualifications are often not a requirement.



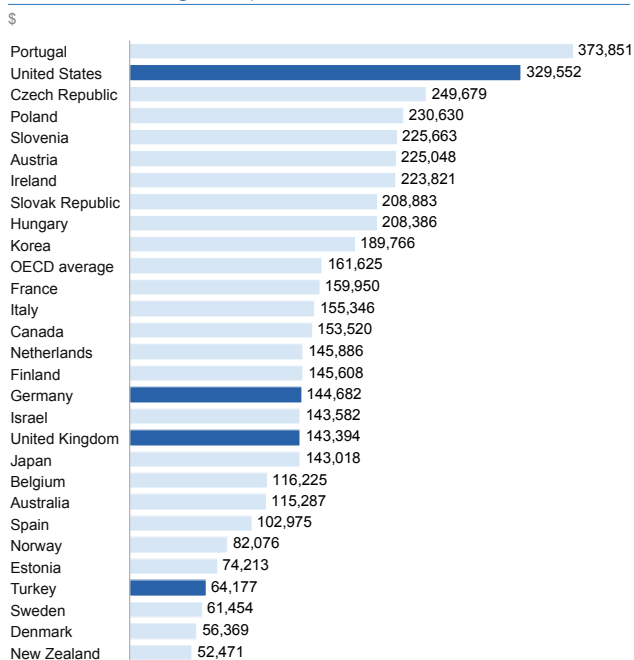
How an accountant

Exhibit 4

Net present value of tertiary education

■ Countries included in survey

For males obtaining tertiary education in OECD countries, 2008¹



¹ "Tertiary" education defined as ISCED 5/6. Australia, Belgium, and Turkey refer to 2005. Portugal refers to 2006. Japan and Slovenia refer to 2007. All other countries refer to 2008. Cash flows are discounted at a 3% interest rate.

SOURCE: OECD

Respondents in Morocco point to a lack of time for their studies due to their work commitments, as well as to a lack of interest in continuing their education. National conditions might well play a role here, as the country faces a severe lack of jobs for young people.

The chief complaint of German young people, uniquely, is that there are not enough places to study. The numbers appear to back this up. A little more than 20 percent of Germans aged 25 to 34 have a postsecondary degree. Not only is that among the lowest in the OECD, but the figure is also unchanged in comparison with those aged 55 to 64. In most industrialized countries, by contrast, educational attainment has risen over the last 30 years.⁷

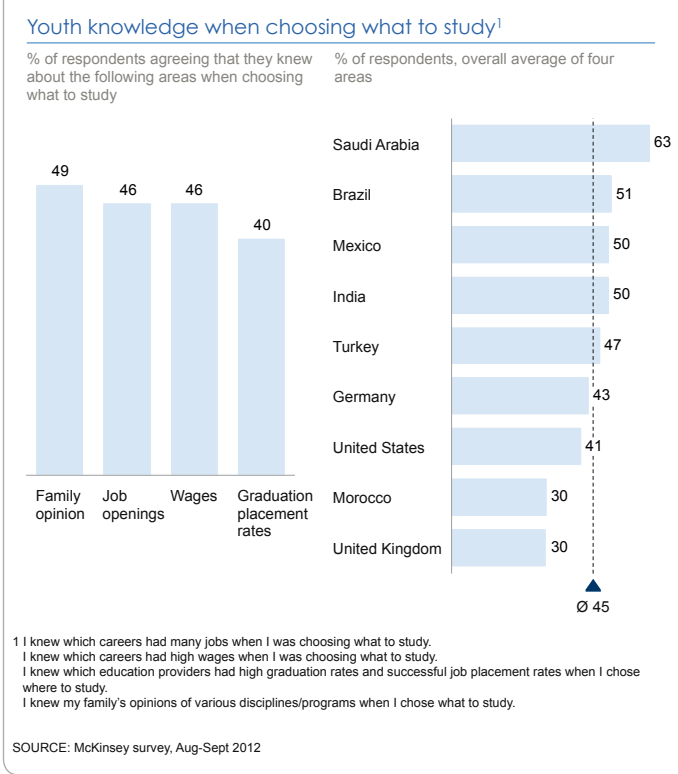
Maybe the most puzzling response of all, however, comes from youth in the United Kingdom. The country is home to many of the world's best and most famous universities, and it has increased the number of university places markedly. Even so, British youth give the lowest priority of those in any country in our survey to continuing in postsecondary education; only 40 percent believe that postsecondary education will improve their chances of securing a job. British respondents also were not well informed when making decisions about postsecondary education (Exhibit 5). As a result, youth are quick to detour from the education-to-employment highway.

Choosing what to study and where

Enrollment is only the first part of the journey. Once youth decide to continue their schooling, they face the daunting task of choosing what to study and where to study it. The evidence is distressing: way too many young people take a wrong turn here. Fewer than half of those surveyed are confident that if they had to do it again, they would study the same subject. That's a lot of disappointment; it's also a sign that students don't have the information they need to make the right choices. In response to another question, youth across the surveyed countries said they were not well informed

Exhibit 5

Youth are not well informed when making educational choices



about the availability of jobs or the level of wages associated with their course of study.

Some 40 percent of youth also report that they were not familiar with the market conditions and requirements even for well-known professions such as teachers or doctors. Without this understanding, many students choose courses half blindly, without a vision of whether there will be a demand for their qualifications upon graduation.

Finally, a large number of students don't know what they don't know. In Brazil and Saudi Arabia, for example, those surveyed believed they had a good grasp of potential careers. When asked about specific occupations, however, they proved not to be particularly well informed: for instance, only 46 percent of youth in Saudi Arabia and 58 percent of youth in Brazil reported understanding the skills required and wage levels for school teachers.

We systematically analyzed the answers young people gave us and broke down what we heard into seven distinct segments. Each segment has different outcomes; each requires a different set of policies to improve the chances of those within them (See youth segmentation analysis on pages 32-35).

Another revealing finding is that in regard to vocational education, the influence of societal perception is alive and well. In almost every society, occupations that require a higher level of studies tend to carry more status. Consider that 70 percent of young people surveyed believe vocational schools are more helpful in getting a job and half said they find it more appealing than an academic track. At the same time, though, nearly two-thirds of youth said that vocational tracks were less valued by society. Of those who said they preferred the idea of vocational training, fewer than 40 percent actually enrolled in such courses (Exhibit 8). In fact, of all nine countries surveyed, Germany is the only place where students believe that the academic and vocational paths are held in equal esteem (Exhibit 9).

YOUTH SEGMENTATION

We asked 4,500 youth a combination of attitudinal and behavioral questions to develop an understanding of how they thought. On the basis of their answers and outcomes, we broke down the population into seven segments—five for those with postsecondary education and two for those without. We then differentiated the five postsecondary segments on two critical axes: the extent to which they were informed about the choices they made and their interest in pursuing their education and career. (Exhibit 6)

POSTSECONDARY SEGMENT 1: STRUGGLING TO GET AHEAD

Youth in this segment (representing 26 percent of the cohort) place a great deal of importance on educational factors but are not well informed about them—a combination that leads to poor outcomes. For example, of the 13 reasons a youth might choose to study at a particular educational institution (ranging from parental advice to job-placement rates), this group places above-average priority on 11 of them, a higher proportion than any other segment.⁸ People in this segment value things like the prestige of the school, which employers themselves rank much lower.

Perhaps as a result, only about 40 percent of this segment say they would make the same educational decision if they could choose again what to study and where, and they rate themselves low on both general and job-specific preparation. Just over a quarter (27 percent) of this segment is unemployed, and 16 percent did not finish postsecondary education, primarily because they found it too demanding.

Given the interest that members of this segment have in education, providing accurate information and improving their skills is critical to helping them succeed. They need guidance on such matters as career paths, postsecondary placement opportunities, and wages.

POSTSECONDARY SEGMENT 2: DRIVEN—EDUCATION IS IMPORTANT TO SUCCESS

Representing 18 percent of postsecondary youth, this segment also places high importance on educational factors, but it differs from Postsecondary Segment 1 in two respects. First, members do not prioritize career factors to the same degree, and second, they are more selective in the educational factors they consider important. Unlike the individuals in Segment 1, for example, they do not consider it important to go to the same institution as their friends. They are most likely to believe that education, as opposed to their socioeconomic background, is the most important factor in determining success. They are driven to succeed.

With an unemployment rate of 16 percent, outcomes for this segment are much stronger than for Segment 1, although almost the same share (15 percent) did not finish their education, primarily because they left to take jobs. This segment is willing to pay for more education if doing so will improve educational and career outcomes. Creating paths for these youth that do not force them to choose between studying and working would allow more of them to fully benefit from their desire for education.

POSTSECONDARY SEGMENT 3: DISENGAGED

This segment (representing 18 percent of postsecondary youth), like Postsecondary Segment 1, is not well informed. Unlike the individuals in that segment, though, they are less motivated to improve their outcomes, and they place less emphasis on education.

It is no surprise, then, that the youth in the disengaged segment have the poorest outcomes: almost 40 percent are unemployed, and 38 percent did not complete their education satisfactorily (15 percent did not finish their education at all and 23 percent failed to graduate on time). They are also least satisfied with their jobs.

The disengaged segment is frustrated: 14 percent of those who sought a job related to their field of study took more than a year to find one, and 37 percent were still looking. It might be for this reason that the segment contains the most individuals who say that if they had another chance they would choose a different field of study. While other segments with poor outcomes are often willing to pay for improved outcomes, disengaged youth are relatively unlikely to do so.

Providing individuals in this segment with better information might help improve their opportunities and outcomes, but things like general career support resources probably will not work because they are less apt to use them. What are required are interventions tailored to individual circumstances, such as one-on-one outreach, assigned mentors and guidance counselors, and customized solutions.

POSTSECONDARY SEGMENT 4: DISHEARTENED

Similar to the disengaged segment, the youth in this segment (representing 17 percent of postsecondary youth) are demotivated and frustrated. Their frustration arises from a strong belief that their background will determine their likely career opportunities: they do not believe that a good education can overcome their economic disadvantage. Perhaps as a result, they place greater priority on listening to the opinions of their family and friends when making education-to-employment choices, and they put less emphasis on factors employers consider important, such as in-person presentation and previous work experience. This segment is least likely to be willing to pay for additional education; more than 70 percent would not make the same decision about their education a second time. Twenty-one percent are unemployed, and twenty percent did not finish their education due to costs, family influence, and concern that their skills were not improving. Only a quarter of those employed say their job is related to their field of study.

People in the disheartened segment are less likely to respond to traditional information approaches because they don't believe in the system. Reaching individuals in this segment means helping them rethink the perception that education is unable to help them overcome socioeconomic disadvantage. They need to see for themselves that people from their own background can succeed.

POSTSECONDARY SEGMENT 5: WELL POSITIONED

This group (20 percent of the total) is in the best shape: 84 percent report above-average incomes, and only 8 percent failed to graduate. They are well informed and care about their educational options and future. While this segment also believes that socioeconomic background plays an important role in future success, they are confident that they can take advantage of the opportunities that emerge, and they are willing to pay for them: 70 percent say they would pay for additional education if it would improve their career outcomes.

SECONDARY SEGMENT 1: TOO COOL TO STUDY

The young people we surveyed who did not take up postsecondary education or training fall into two groups of roughly equal size: those who are uninterested or who do not see the value of further education (“too cool to study”) and those who might be interested but cannot not afford further education (“too poor to study”). Overall, the percentage of youth who don’t enter postsecondary varies significantly by country, but the dynamic is similar across all surveyed countries.⁹

People in the too-cool-to-study group don’t believe that education matters for their future. Only 10 percent believe they lack required job skills; just 5 percent are willing to pay for additional education. But these youth face challenges: more than 40 percent are unemployed, and of those who do have jobs, a third are in interim positions that they plan to leave.

In a sense, this group isn’t even on the highway. Direct, early, and focused intervention will be required to get them started.

SECONDARY SEGMENT 2: TOO POOR TO STUDY

The two leading reasons this segment offers for not pursuing further education were cost (37 percent) and needing to work (22 percent). Their rates of unemployment (42 percent) and interim employment (40 percent) are high. But at least when it comes to their outlook, they are on the right track. Working with this group is relatively straightforward, albeit difficult: it will be important to introduce lower-cost educational options and offer more effective financing. Seventy-five percent of people in this group state that they would pay for additional education if doing so would improve their career options.

As we look at these segments, there are select differences in gender and age that are important to recognize. From a gender perspective, the driven segment is more likely to include females. Similarly, the well-positioned segment is composed largely of older (26- to 29-year-olds) and wealthier youth. More striking, however, are the country variations. For example, there is a distinctly higher percentage of disengaged youth in Morocco, while Saudi Arabia has the most youth who are in the well-positioned segment (Exhibit 7).

Exhibit 6

Seven distinct youth segments exist

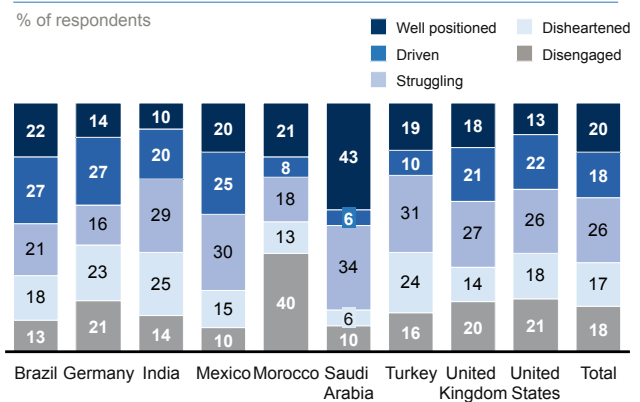
How well informed are you?	Well informed	Sizable and distinct segment not identified	Well positioned (20%) "I'm focused and prepared"	Post-secondary segments
	Mode-rately informed	Disheartened (17%) "I know enough to not care"	Driven (18%) "I'm motivated because I know education matters"	
	Not well informed	Disengaged (18%) "I don't care to know much"	Struggling (26%) "I want to know more"	
Why didn't you attend post-secondary?	Too cool (57%) "I'm not interested in attending post-secondary"		Too poor (43%) "I'd like to go to post-secondary, but can't afford to"	High school only segments
	Care a little		Care a lot	
How much do you care about educational and career options?				

SOURCE: McKinsey survey, Aug-Sept 2012

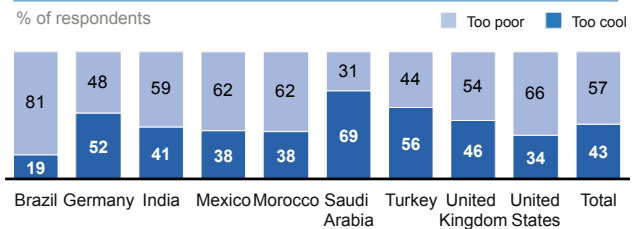
Exhibit 7

Countries have different mixes of youth segment types

Distribution of postsecondary segments by country



Distribution of high-school-only segments by country



SOURCE: McKinsey survey, Aug-Sept 2012

This variation is influenced by multiple factors, including the country's labor-market situation. For example, in Saudi Arabia, there is often an expectation among youth of public-sector employment upon graduation. Perhaps it is for this reason that only 27 percent of Saudi Arabian youth who enter private-sector employment are in the well-positioned segment, versus 42 percent of those entering state employment (in other countries, there are equal percentages for these two groups).

In Morocco, the high rate of disengaged youth can also be linked to labor-force and education-system factors. First, the high youth unemployment rate in Morocco (about 28 percent), as well as the challenging job growth situation, may induce pessimism. Second, even when youth want to pursue postsecondary education, a relatively low percent believe it helps them gain employment opportunities, and employer, providers, and youth question the preparedness of graduates exiting the system (see sections 1.2 and 1.3). Finally, Moroccan youth are among the least likely to say that they would choose to study at the same institution again. As youth in Morocco see the situation, it is no wonder that many choose to disengage.

This perception of vocational courses translates into social attitudes regarding kinds of work. We asked youth in each surveyed country to rate the attractiveness of certain occupations; there is considerable variation in their responses (Exhibit 10).

The differences are fascinating. In Brazil, for example, young people rank teaching as among the least attractive occupations; in Mexico and the United States, it is one of the most attractive. This raises certain questions: for example, why are health-related occupations such as medical assistants and health care technicians so much more attractive in Mexico and Morocco than in other parts of the world?

These questions are interesting in and of themselves. But raising the reputation of relatively unpopular jobs matters in broader terms. The vast majority of expected job growth in countries such as the United States is in occupations that do not require college degrees. According to the US Bureau of Labor Statistics, of the top 30 occupations with the largest projected growth to 2020, only 4 require bachelor degrees.¹⁰ For sectors and occupations that are struggling to attract enough skilled personnel, such as home health or personal care aides, understanding the drivers of student preferences can be instructive.

1.2 Critical intersection 2: Building skills

Two key questions must be answered at this point. What skills do students need? How should skills training be delivered?

As each stakeholder seeks to negotiate this intersection, the education-to-employment highway becomes particularly chaotic, with everyone pushing ahead with little regard to the others on the route. Consider, for example, the different views on whether graduates are ready to succeed in entry-level positions (Exhibit 11).

These differing perspectives hold across

In our survey, 58 percent of youth said that practical, hands-on learning is an effective approach to training. However, only 24 percent of academic-program graduates and 37 percent of vocational graduates said that they spend most of their time in this manner.

countries, with Germany and the United States demonstrating the widest gaps between the opinions of providers and employers (Exhibit 12).

Opinions on the level of preparedness differ depending not only on who is answering the question, but also on what sector they represent. Just over half of employers in education, finance, and health care—sectors where recruits are often professionals—rate their new employees as adequately prepared. Employers in trades, construction, and manufacturing were less sanguine (Exhibit 13).

To get a better understanding of how employers approach this intersection, we segmented them into three groups, based primarily on their attitudes and behaviors. We found that the employers who report the best outcomes with regard to the preparedness of new workers are those that are most attentive at all three critical intersections.

One important conclusion: the employers who engage the most, and the earliest, have the best outcomes. Just as we segmented the young people in our study, we explored the attitudes and behaviors of the 2,700 employers surveyed, dividing them into three categories (see the box on our employer segmentation).

A closer look at how employers regard the specific skills possessed by graduates is also informative. We asked employers and education providers for their assessments of the importance of 12 individual skills and their evaluation of general competency of the young people they hire in regard to the skills. Their responses highlight three important points (Exhibit 15).

First, compared with education providers, employers are much clearer in their ranking of the relative importance of various skills. Employers cite work ethic and teamwork as the most important skills in almost every country; education providers give similar weights across the board.

Second, employers note a mismatch between what they need and what they are seeing; they rank the competence of new hires in each of the various skills lower than the importance they give it. Third, in some skills, there is a wide gap between the perspectives of employers and education providers on the competence of new hires. The difference is particularly stark in theoretical and hands-on training, problem solving, and computer literacy.

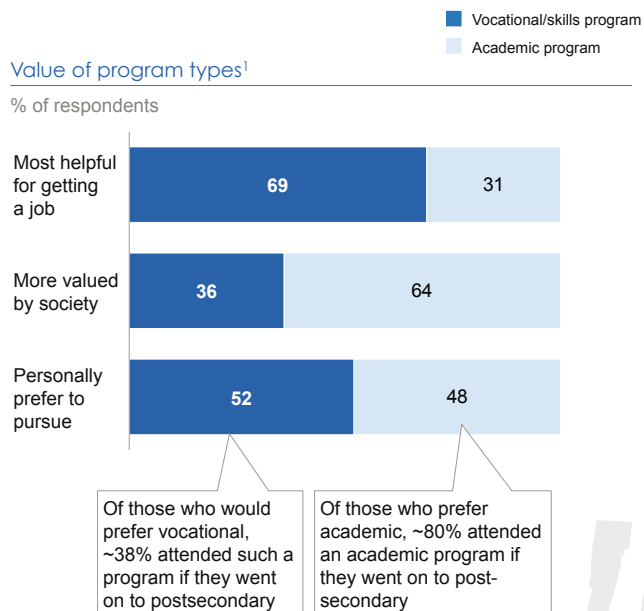
Digging deeper into the data, we can tease out further differences. For example, compared with those in other countries, education providers in Brazil and Mexico are much more likely than employers to rate youth as competent (Exhibit 16). Even in countries where the differences in perception appear narrow, there is a fair amount of misalignment on specific competencies. In Germany, for instance, providers are more likely than employers to rate youth competent in theoretical and hands-on training within a discipline. On the other hand, employers rate youth leadership competencies higher than providers do.

Another gap has to do with how to reach competency; in this case, the difference is between youth and their instructors. In our survey, 58 percent of youth said that practical, hands-on learning is an effective approach to training. However, only 24 percent of academic-program graduates and 37 percent of vocational graduates said that they spend most of their time in this manner (Exhibit 17).

We also found it intriguing that young people consider online or distance learning to be as effective as traditional formats. Given that economics is a major factor in limiting access to postsecondary education, scaling up distance learning could be a cost-effective way to provide more educational opportunities.

Exhibit 8

The perception challenge of vocational education



¹ Now I would like to understand how you value different post-secondary education options. For each of the following statements, please tell me your opinion on which type of education—vocational/skills or academic—better applied.

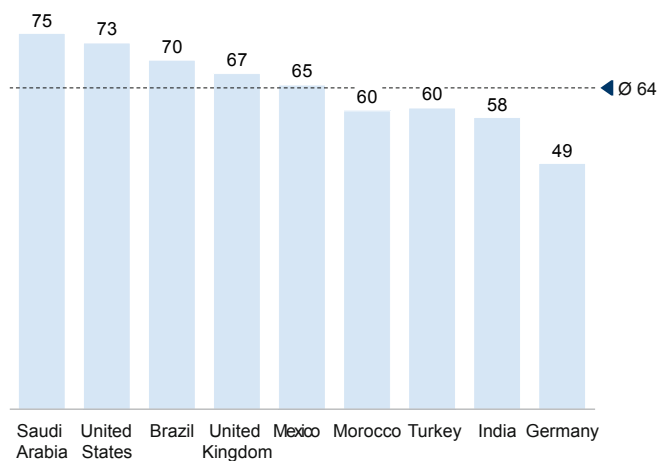
SOURCE: McKinsey survey, Aug-Sept 2012

Exhibit 9

In every surveyed country except Germany, youth stated that academic paths were more valued by society than vocational ones

Value of academic and vocational paths by society¹

% of respondents stating that academic paths were more valued by society than vocational paths



¹ Now I would like to understand how you value different post-secondary education options. For each of the following statements, please tell me your opinion on which type of education—vocational/skills or academic—better applied.

SOURCE: McKinsey survey, Aug-Sept 2012

Exhibit 10

Youth perception of jobs by country¹

Occupation	Brazil	Germany	India	Mexico	Morocco	Saudi Arabia	Turkey	United Kingdom	United States	Total
Professional degree Engineer	71%	51%	65%	41%	54%	29%	57%	34%	37%	49%
Professional degree Doctor/surgeon	60%	47%	60%	49%	46%	30%	55%	37%	37%	47%
Professional degree Lawyer	60%	48%	51%	43%	59%	35%	57%	37%	37%	47%
Bachelor's Financial analyst	57%	46%	53%	40%	50%	29%	47%	36%	29%	42%
Bachelor's School teacher	33%	41%	50%	46%	42%	27%	48%	41%	42%	42%
Bachelor's Accountant	50%	43%	52%	40%	41%	26%	43%	32%	31%	39%
2-3-year college degree Web developer	64%	52%	60%	54%	42%	35%	52%	37%	42%	49%
2-3-year college degree Graphic designer	66%	49%	59%	55%	61%	24%	48%	31%	45%	48%
2-3-year college degree IT technician	59%	51%	58%	50%	39%	37%	51%	38%	39%	47%
2-3-year college degree Social worker	50%	40%	62%	46%	58%	38%	41%	33%	36%	44%
Certificate Police officer	47%	45%	50%	38%	53%	28%	35%	31%	30%	39%
Certificate Medical assistant	45%	43%	48%	45%	52%	22%	41%	32%	32%	39%
Certificate Health care technician	39%	36%	48%	47%	63%	32%	43%	25%	32%	39%
Certificate Teacher assistant	43%	36%	46%	46%	37%	16%	41%	32%	34%	38%
Certificate Secretary	47%	34%	42%	48%	33%	34%	32%	27%	34%	36%
Certificate Electrician	37%	37%	42%	34%	27%	23%	35%	26%	29%	32%
Certificate Mechanic	36%	39%	43%	31%	22%	21%	29%	22%	27%	30%
Certificate Construction worker	38%	31%	42%	31%	14%	12%	26%	19%	22%	27%
Certificate/no ed Sales representative	54%	39%	45%	38%	43%	30%	32%	26%	24%	36%
Certificate/no ed Customer service	36%	35%	46%	45%	44%	26%	38%	30%	28%	36%
Certificate/no ed Food service worker	44%	42%	41%	41%	36%	17%	40%	25%	27%	35%
Certificate/no ed Hotel staff	48%	33%	39%	42%	37%	20%	29%	28%	25%	33%

¹ Calculated as % who find the field attractive/(% who are familiar with it).

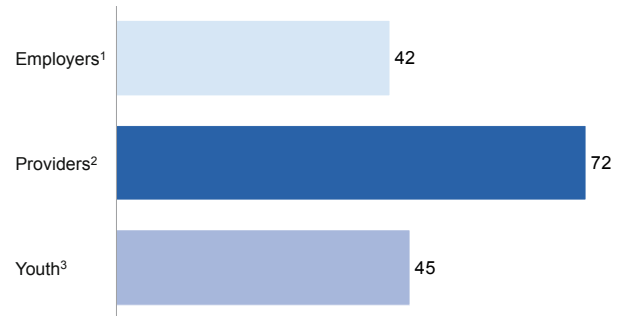
SOURCE: McKinsey survey, Aug-Sept 2012

Exhibit 11

Stakeholders hold different views about the readiness of graduates for the job market

Agreement that graduates/new hires are adequately prepared

% of respondents



¹ Overall, employees we hired in the past year have been adequately prepared by their prehire education and/or training.

² Overall, graduates from my institution are adequately prepared for entry-level positions in their chosen field of study.

³ Overall, I think I was adequately prepared for an entry-level positions in my chosen field of study.

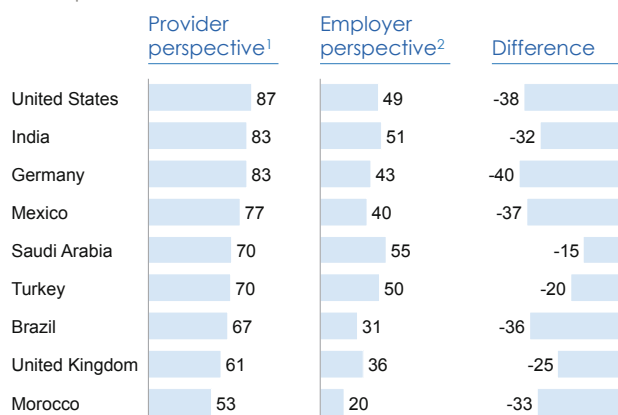
SOURCE: McKinsey survey, Aug-Sept 2012

Exhibit 12

Perception of graduate readiness for the job market by country

Agreement that graduates/new hires are adequately prepared

% of respondents



¹ Overall, graduates from my institution are adequately prepared for entry-level positions in their chosen field of study.

² Overall, employees we hired in the past year have been adequately prepared by their pre-hire education and/or training.

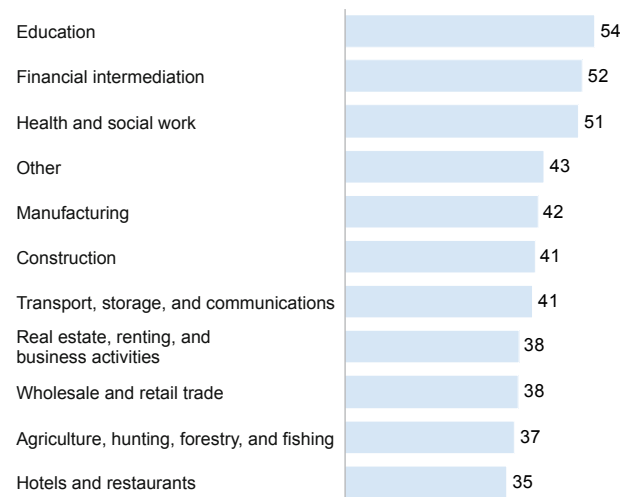
SOURCE: McKinsey survey, Aug-Sept 2012

Exhibit 13

A majority of employers in only three sectors state that their new-hire employees were prepared

Employee preparedness by sector¹

% of employer respondents who state that new-hire employees were prepared; minimum 100 respondents per sector



¹ Overall, employees we hired in the past year have been adequately prepared by their pre-hire education and/or training

SOURCE: McKinsey survey, Aug-Sept 2012

1.3 Critical intersection 3: Finding employment

The third critical intersection is when youth prepare to leave education behind and enter the workforce. Ideally, there is a seamless merging of interests at this point. Students want to find a job suited for their skills—and fast. Employers want to find the right talent. Educators value high placement rates as an indication of the relevance and quality of their programs.

So what do we see? Congestion, conflicting signals, and poor signposting are common. Although the factors leading to unemployment are complex, the high levels of youth unemployment indicate the seriousness of the problem. In 2011, the unemployment rate for young people (aged 15 to

29) was 15 percent across more than 100 countries, three times the unemployment rate of those over 30.¹¹ One in five unemployed young people in advanced economies has been seeking work for a year or more. This figure rises to about 30 percent in the euro area.¹²

How do the three stakeholders see the situation? Let's break it down.

The youth perspective

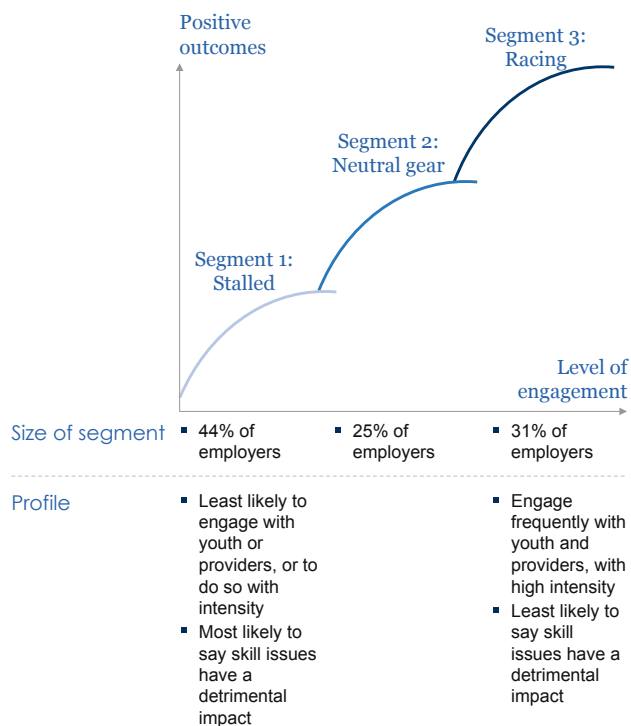
Youth often find themselves on the hard shoulder when it comes to finding a job. Of those in our sample who had a job, approximately one in four (27 percent) young people took more than six months to find their initial employment. Among working youth, only 55 percent landed in a job



Immigrant music

Exhibit 14

Three distinct segments of employers exist, with more engagement related to better outcomes



SOURCE: McKinsey survey, Aug-Sept 2012

Members of the stalled segment have the most to gain from changing the way they navigate the education-to-employment highway. The problem, though, is that though they are lost, they are unwilling or unable to take action to improve their sense of direction.

EMPLOYER SEGMENTATION

The importance that employers place on recruiting and hiring, as well as how well they work with education providers, in large part determines their success with new hires (Exhibit 14). We identified three types of employers and found that large, medium, and small companies are represented similarly in each of the segments.

SEGMENT 1: STALLED

The stalled segment, which represents nearly 44 percent of employers, has an almost cavalier attitude to hiring—and it shows.

Fewer than half of those in this segment rate hiring factors as important.¹³ They are less likely to train their talent and less willing to pay for it. Forty-two percent have never interacted with education providers. When they have, only 21 percent say it was effective, compared with 40 percent of those in Segment 3.

It comes as no surprise, then, that stalled employers have disappointing outcomes. Only 25 percent say they are finding the right talent; 27 percent say that a lack of skills is hurting their business. Members of the stalled segment have the most to gain from changing the way they navigate the education-to-employment highway. The problem, though, is that though they are lost, they are unwilling or unable to take action to improve their sense of direction.

SEGMENT 2: NEUTRAL GEAR

Approximately 25 percent of employers fall into this segment. Like those in Segment 3, those in neutral gear take connecting, recruiting, and hiring seriously, but they are not seeing great results. They are doing the right things, but without enough intensity and frequency.

For example, 72 percent of those in Segment 3 say they interact with education providers, compared with 60 percent of those in Segment 2. With regard to coordinating within the industry, the figures are 57 percent and 48 percent. As for reaching out to youth, 78 percent of Segment 3 reports doing so versus 69 percent of Segment 2. The differences might not seem significant, but the evidence shows they are.

SEGMENT 3: RACING

Accounting for 31 percent of respondents, these employers cruise the education-to-employment highway with confidence and skill. Employers in this segment considered hiring and working with educational institutions very important and acted on that belief.

Racers are more likely to offer training to their employees—both internally (81 percent) and through external providers (38 percent)—and are more likely to provide this training through a program coordinated within their industry. Almost three-quarters of racers said they worked with educational institutions on areas like curriculum design or on ensuring that instructors have relevant industry experience. They also reached out to youth, doing so by using new media and working with youth-oriented organizations, for example.

And the push seems to be working. Racers are more likely than the other two segments to say that their efforts are effective: 69 percent said they face no challenges in recruiting the talent they require.

Exhibit 15

Employer and education provider perspectives on skill importance and competence

■ Competence
■ Importance

Employer and provider perspectives on youth skills¹

% of respondents responding 8 or higher out of 10



¹ Please rate how competent new hires are on average on a scale of 0 to 10, where 0 means not competent at all on this aspect and 10 means extremely competent on this aspect. Please rate how important these skills are for new hires to have in order to be effective at your company. We will again use a scale of 0 to 10, where 0 means not important at all in order to be effective and 10 means extremely important in order to be effective.

² Local language was only asked outside US and UK, and English proficiency was asked in all countries even when language of business was not English.

SOURCE: McKinsey survey, Aug-Sept 2012

relevant to their field of study (Exhibit 18), with 25 percent finding interim work—jobs that are unrelated to their field of study and that the youth plan to leave quickly. The interim figure is higher in Brazil, India, Mexico, and Turkey than in the developed economies surveyed (Exhibit 19). Although not equivalent, our survey finding on the interim job ratio is similar to that found by other polls seeking to identify underemployment. The Gallup poll, for example, found an underemployment ratio of 26 percent across 143 countries and areas.¹⁴

Examining the findings about interim employment is revealing, because individuals working in such jobs—in addition to those who are unemployed—are the most dissatisfied. They are more likely to be younger men; they tell us that they also have

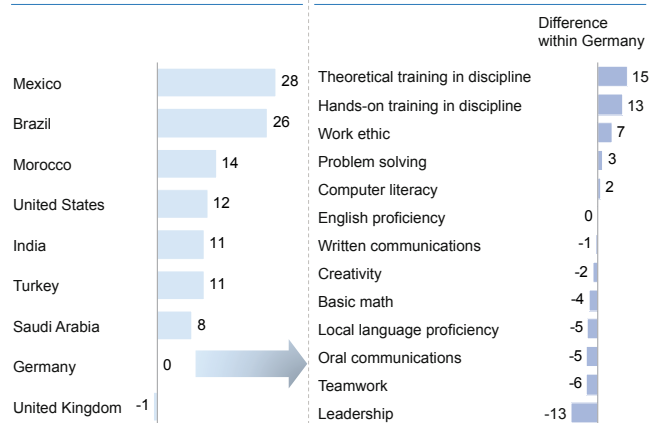
Exhibit 16

Perception gaps of youth skill competence

Employer and provider misalignment on youth competence¹

Difference between employer and provider competence rating; country average

Difference between employer and provider competence rating; Germany country example



¹ Please rate how competent new hires are on average on a scale of 0 to 10, where 0 means not competent at all on this aspect and 10 means extremely competent on this aspect.

SOURCE: McKinsey survey, Aug-Sept 2012

lower incomes. Almost 40 percent of those who do not progress beyond the secondary level find themselves in interim jobs.

The employer perspective

While many youth cannot find a quality job, many employers cannot find the right people to fill the jobs that exist (Exhibit 20). Midsize employers (those with 50 to 500 employees) said that they had 13 entry-level openings on average; large employers had 27.

Across the surveyed countries, nearly four in ten employers who had vacancies reported that a driving reason behind these vacancies remaining unfilled is the lack of the right skills in new graduates (Exhibit 21). This is particularly

Exhibit 17

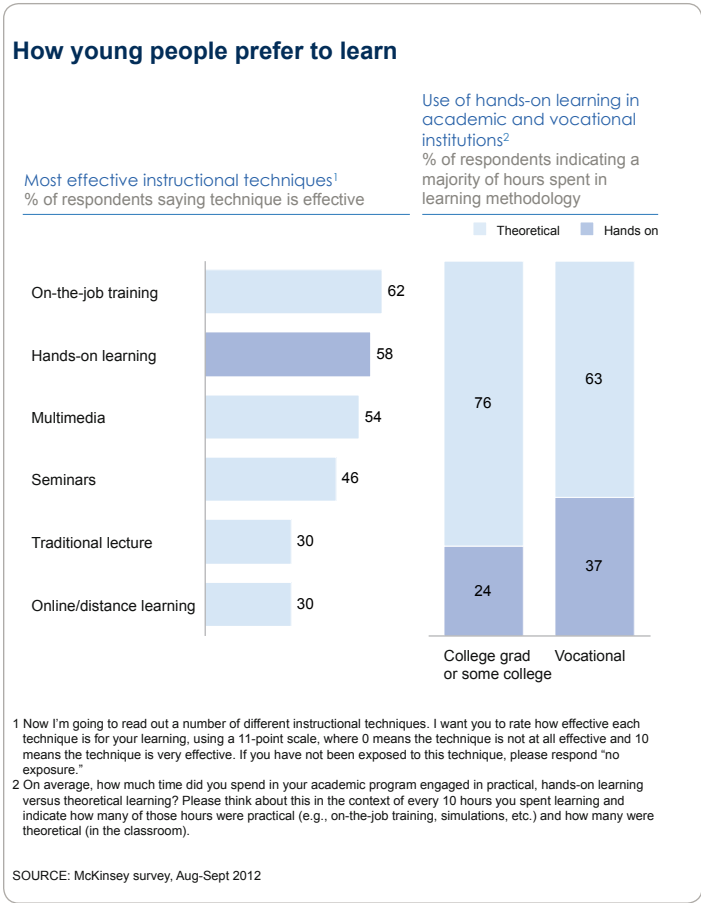
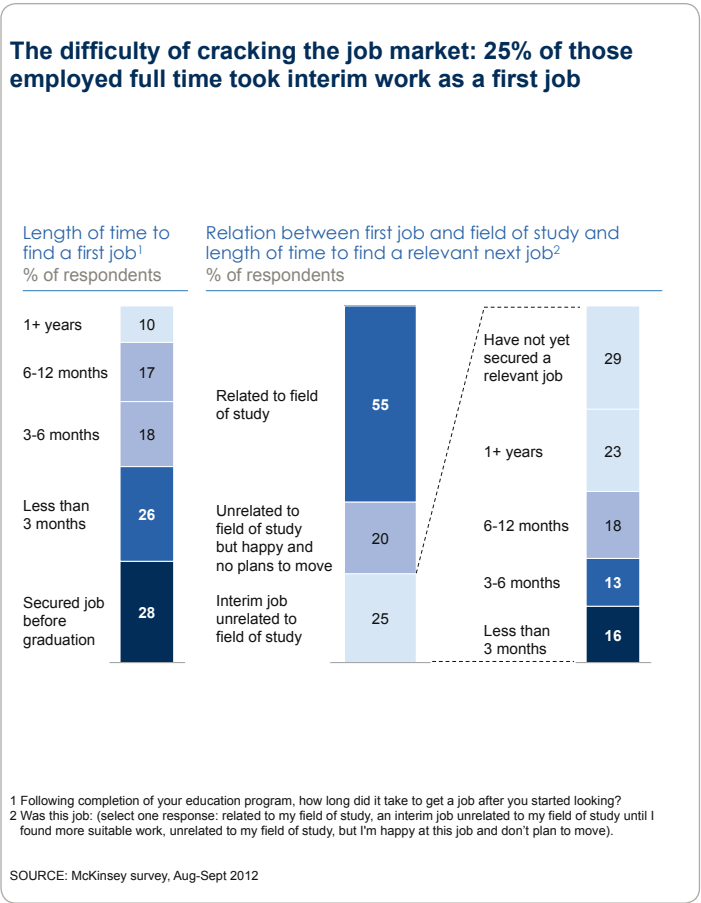


Exhibit 18



Among working youth, only 55 percent landed in a job relevant to their field of study, with 25 percent finding interim work—jobs that are unrelated to their field of study and that youth plan to leave quickly.

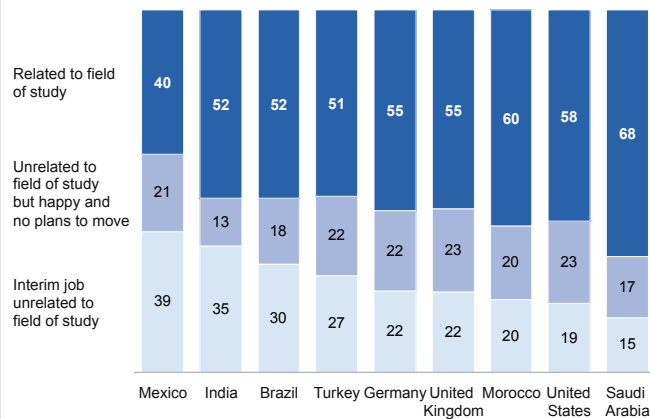
Should I
enroll at
all?

Exhibit 19

Emerging markets tend to have a higher share of youth in interim jobs

Relation between job and field of study¹

% of respondents



¹ Was this job: (select one response: related to my field of study, an interim job unrelated to my field of study until I found more suitable work, unrelated to my field of study but I'm happy at this job and don't plan to move).

SOURCE: McKinsey survey, Aug-Sept 2012

pronounced in Turkey (56 percent), India (53 percent), and Brazil (48 percent), although it remains surprisingly high in all countries apart from Morocco (where vacancies are lowest).

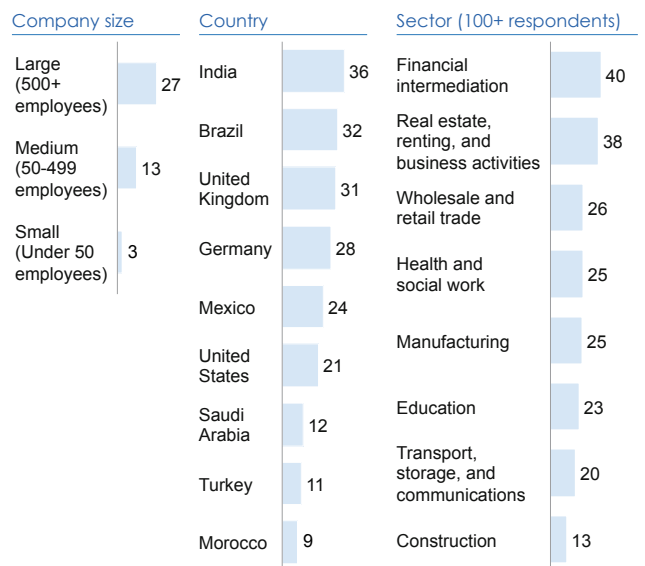
For most employers, not being able to find the right candidates is a significant issue, to the point that 70 percent of employers state they would pay significantly more to get qualified employees (Exhibit 22). The obvious follow-on question, which bears further research, is whether employers follow through on this intention and actually do pay more to attract the talent they seek, and, if not, what gets in the way. The actual likelihood of higher salaries clearly involves a broader range of factors, such as employer ability to pay and the degree of skills scarcity in the industry.

Exhibit 20

A significant number of unfilled entry level jobs exist

Companies of all sizes, sectors, and geographies leave positions unfilled¹

Average number of vacancies by company size Average number of vacancies by country for large employers Average number of vacancies by sector for large employers



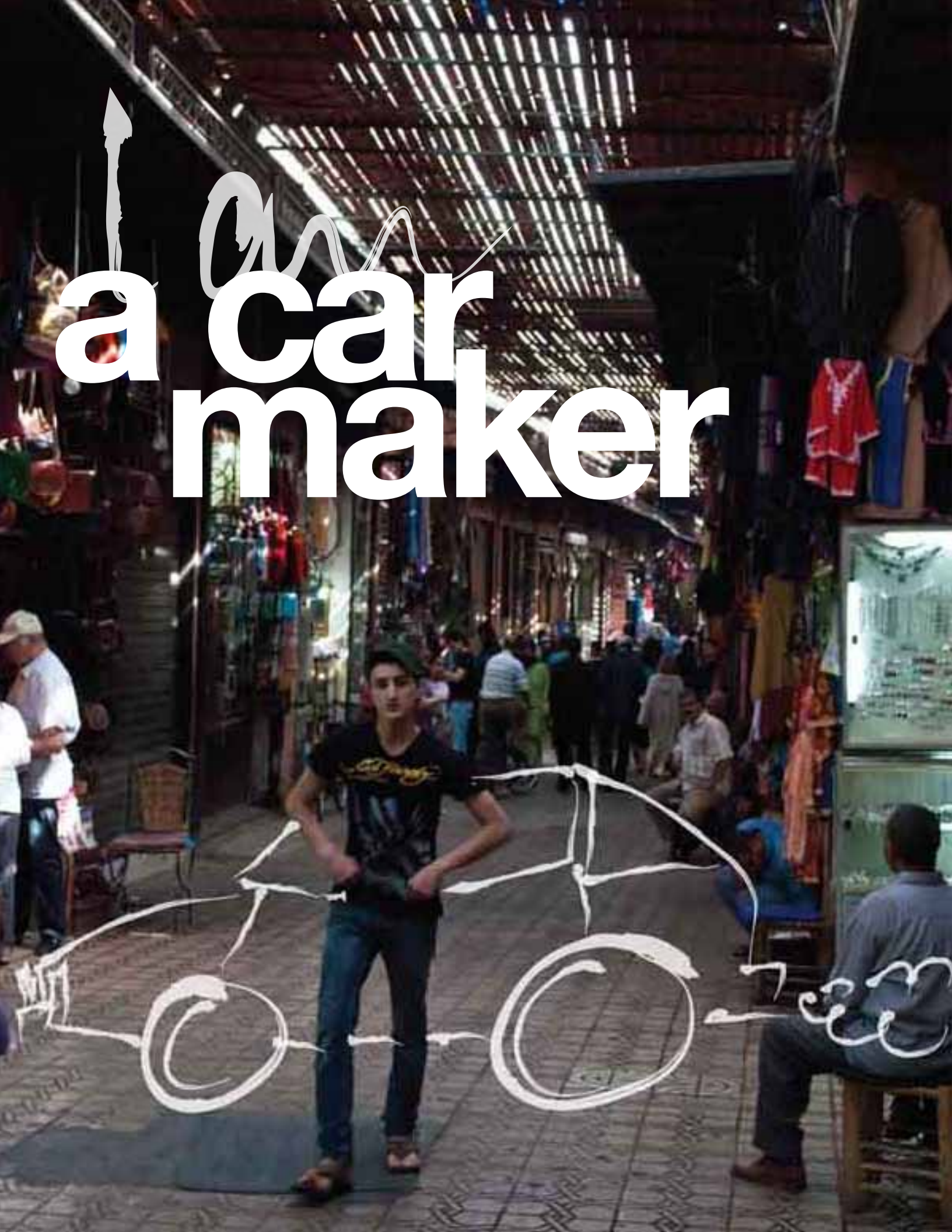
¹ Roughly how many vacant full-time entry-level jobs does your company currently have?

SOURCE: McKinsey survey, Aug-Sept 2012

Employers report that new-hire training is widely provided. More than 90 percent said that they train new workers in job-specific skills, and 84 percent train for general skills that graduates may not have. Training lasts, on average, 20 days. Our interviews, however, indicate that these figures may be inflated, as companies do not always distinguish between days spent in orientation versus skills training. Morocco, Saudi Arabia, and Turkey show significantly lower levels of training (Exhibit 23).

The education-provider perspective

Educators typically are not held accountable for employment outcomes, so it is no wonder that they do not have a clear view of the third intersection (finding a job). But our results should



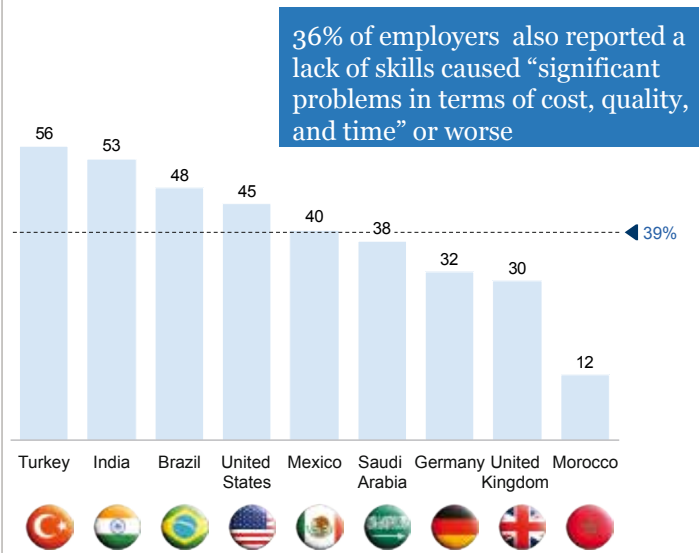
a car maker

Across the surveyed countries, nearly four in ten employers who had vacancies report that one reason for these vacancies is a lack of the right skills in new graduates.

Exhibit 21

39% of employers say a skills shortage is a leading reason for entry-level vacancies

Lack of skills is a common reason for entry-level vacancies
% of employer respondents



give serious pause: a third of educators surveyed could not estimate the percentage of their graduates who found jobs, and many of those who did offer a guess got it wrong. Three-quarters of providers, for instance, believed that most of their graduates found work in three months or less (Exhibit 24), a far more optimistic outcome than that reported by young people.

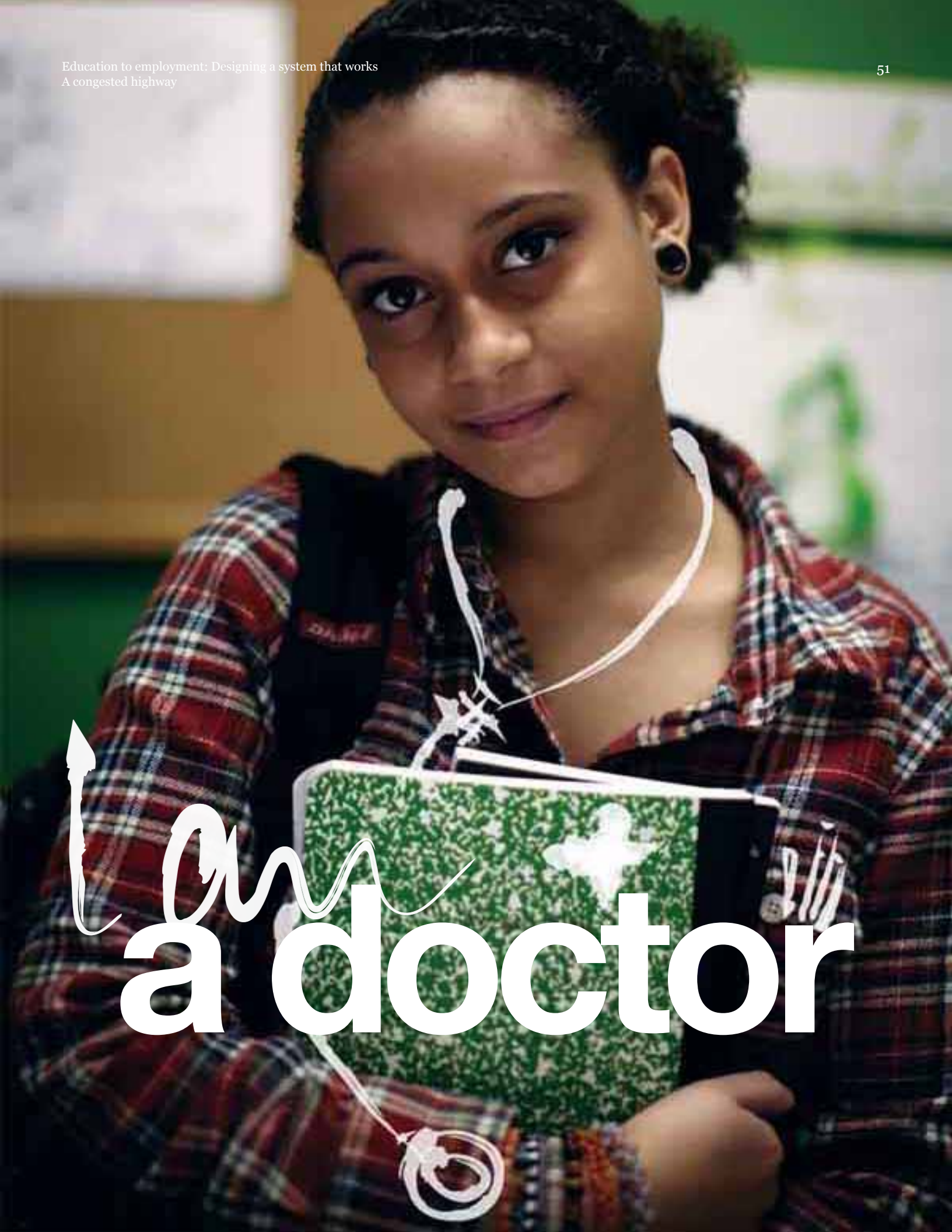
In a sense, it is not surprising that providers know relatively little about what happens to their graduates; they have many other matters to attend to. When we asked educators to identify their priorities, the results were telling: helping students find employment fell to the middle of the list, coming in sixth out of ten issues (Exhibit 25). (The results were similar in this regard for both private and public education providers.)

This does not necessarily mean that their priorities are skewed; maintaining an excellent curriculum and increasing completion rates surely matters. Nor does it mean that providers are not assisting students: the young people we spoke with often sought employment-related support from their school, including information about wages, job prospects, resume preparation, interview guidance, and making connections with companies. Of the education providers surveyed, two-thirds said they offered such services (although only half the youth in our survey were aware of it).

What the results imply is that educators could pay more attention to what is for many students a key priority of pursuing education—getting a good job. Far too many of the providers we spoke with did not understand how they could contribute to improving the current education-to-employment system, or even see it as part of their role. They need to begin to figure this out, or they will lose their most important constituency—the young.

Too many of the young people we spoke to doubted the value of their education. In the short term, that can translate into discouragement and disengagement. In the long term, if young people do not believe that education will deliver returns,

Only half of youth surveyed believe that their postsecondary education had improved their chances of securing employment.



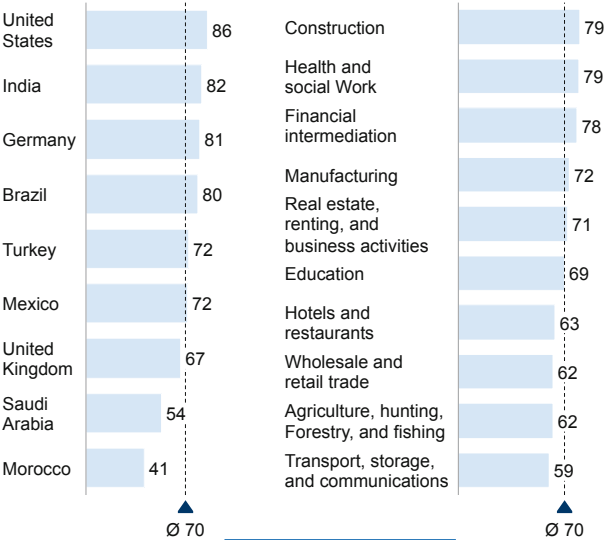
I *am*
a doctor

Exhibit 22

The training premium

Employers who would pay more for the right talent¹

% of respondents



Companies of all sizes state that they would pay an extra 22% on average

¹ If you found a candidate with the right hands-on experience, training, and practical knowledge of the position, would you pay them more than a candidate that has not received relevant training?

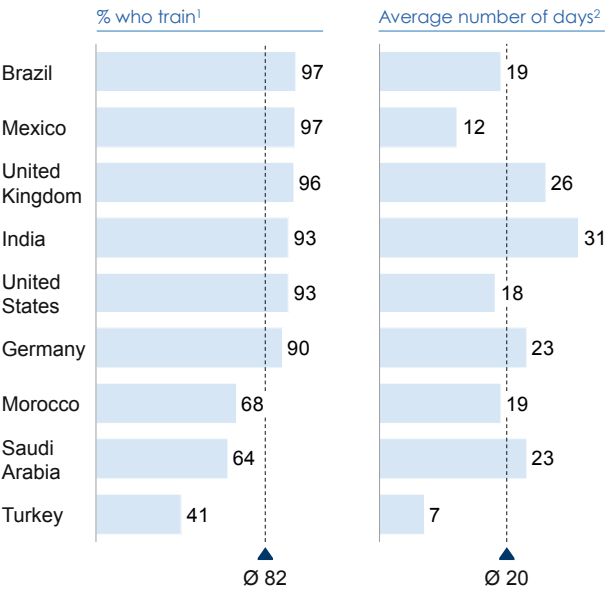
SOURCE: McKinsey survey, Aug-Sept 2012

Exhibit 23

Training of entry level workers

Companies with new hire training

% of respondents



¹ Does your company provide training for new hires?
² On average, how many days of training does a new hire receive in the first year?

SOURCE: McKinsey survey, Aug-Sept 2012

Exhibit 24

On average, a third of educational providers are unable to estimate job-placement rates; those who did estimated optimistically

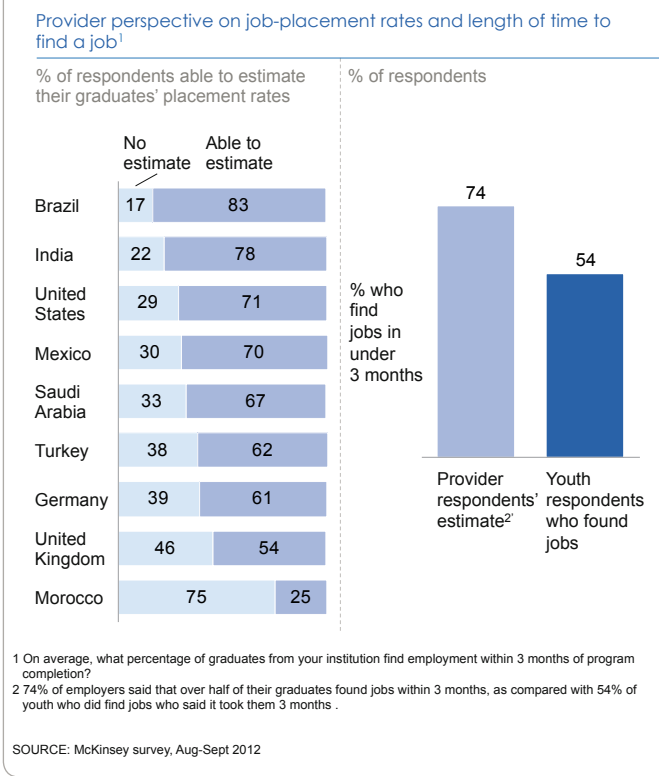
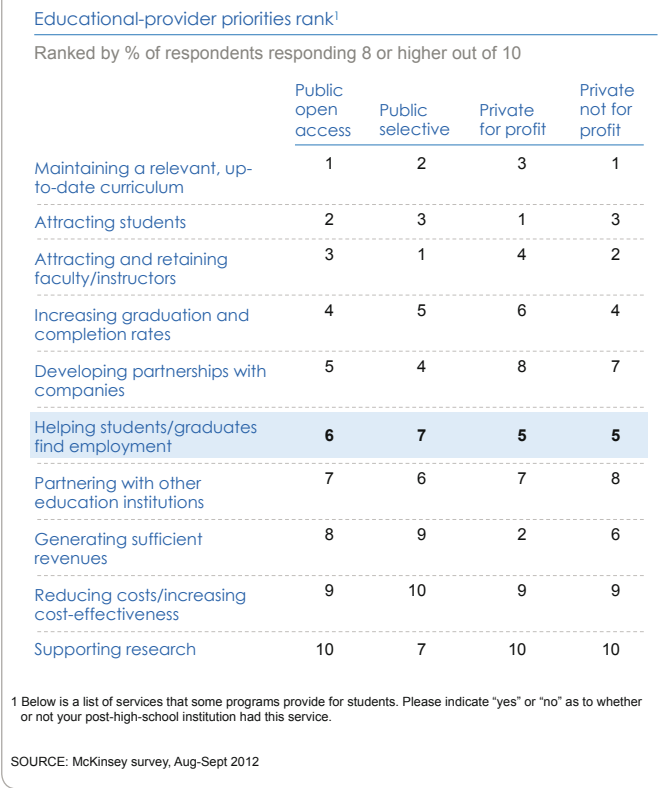


Exhibit 25

Linking students to employment opportunities is a middle priority for education providers

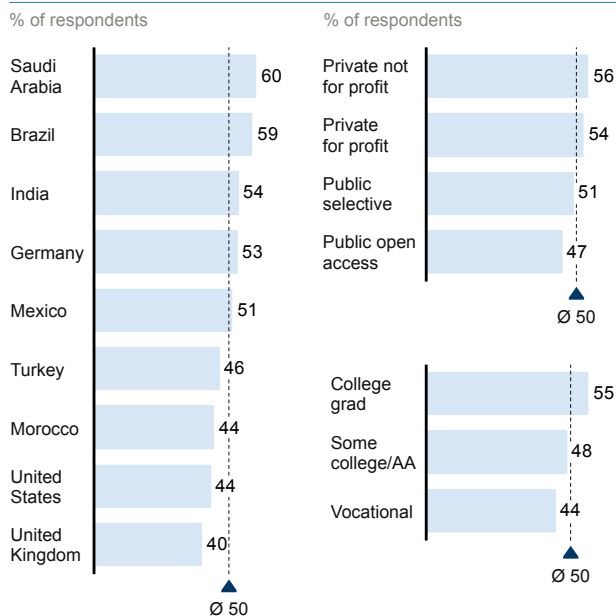


A third of educators surveyed could not estimate the percentage of their graduates who found jobs, and many of those who did offer a guess got it wrong.

Exhibit 26

Only half of youth believe that their post-secondary studies improved their employment opportunities

Students who believe their postsecondary studies improved their employment opportunities¹



¹ My post-high-school education improved my chances of getting a job.

SOURCE: McKinsey survey, Aug-Sept 2012

economic as well as intellectual, they are not going to pay for it. It is in the interest of providers themselves, then, to do more to help.

For example, only half of the youth surveyed believe that their postsecondary education had improved their chances of securing employment (Exhibit 26). Those who studied at private institutions were only marginally more likely to state that their education improved their employment opportunities, as well as those who studied at higher education levels.

Large percentages of young people in all types of educational institutions question whether they made the right choice. Among those who attended vocational schools, for example, 23 percent said that, in hindsight, they did not choose the right place; an additional 42 percent were unsure (Exhibit 27). This reinforces the finding that those

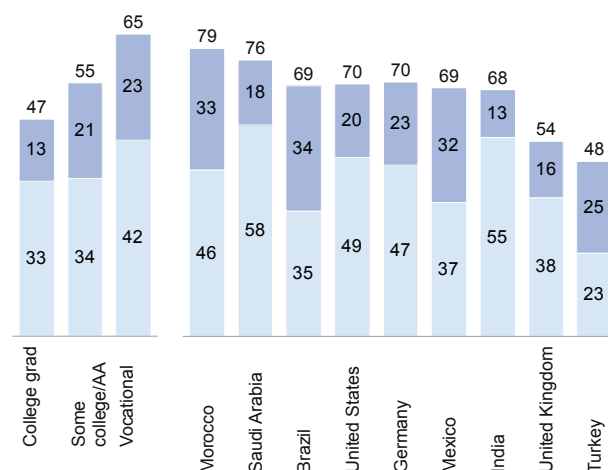
Exhibit 27

Most who attend vocational programs are unconvinced that they made the right decision to attend their particular institution

Disagree Neutral

Choosing the same institution¹

% of respondents % of vocational respondents



¹ Knowing what I do now about the job market, I would make the same education choice (institution and field of study) that I had made previously.

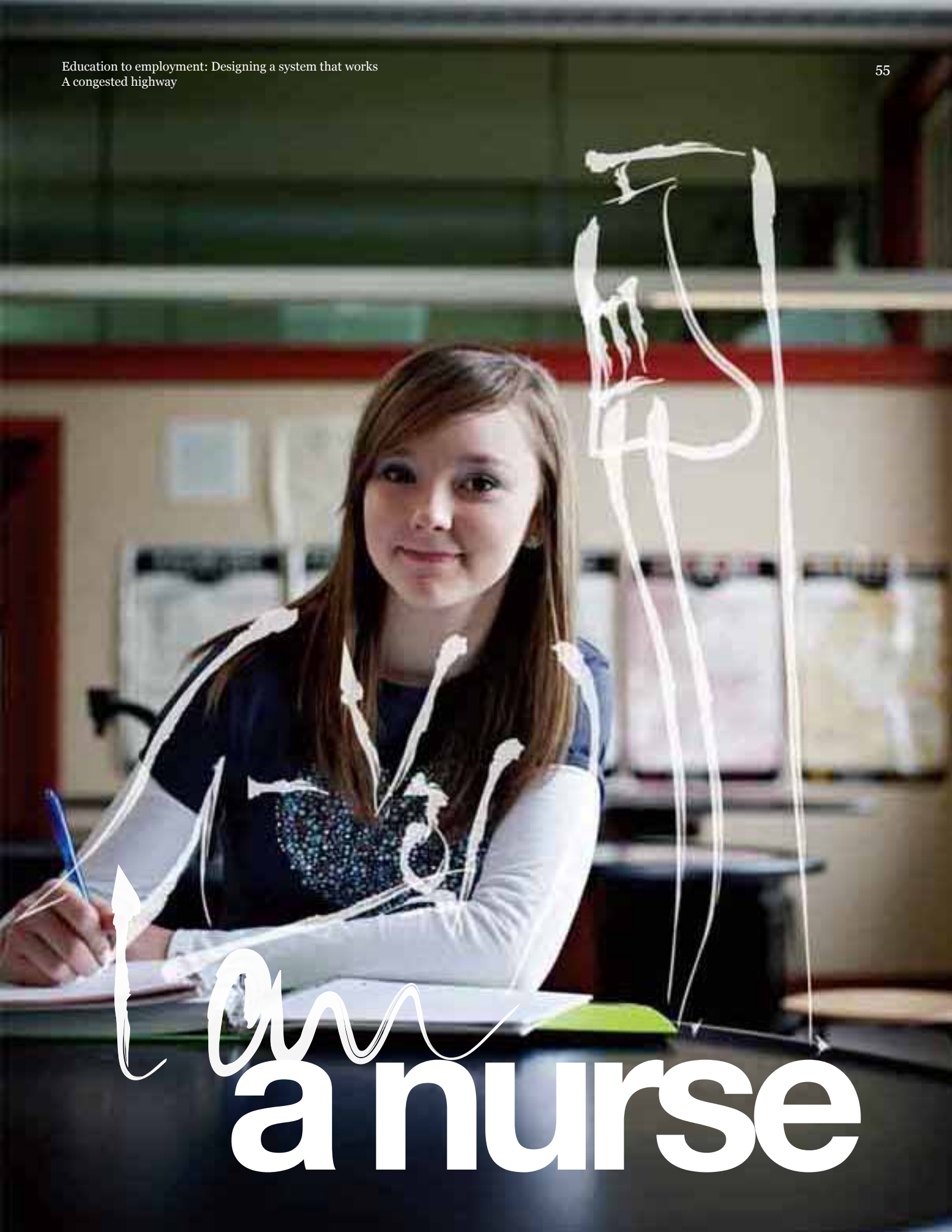
SOURCE: McKinsey survey, Aug-Sept 2012

who studied in vocational paths were less likely to believe that their education improved their job prospects.

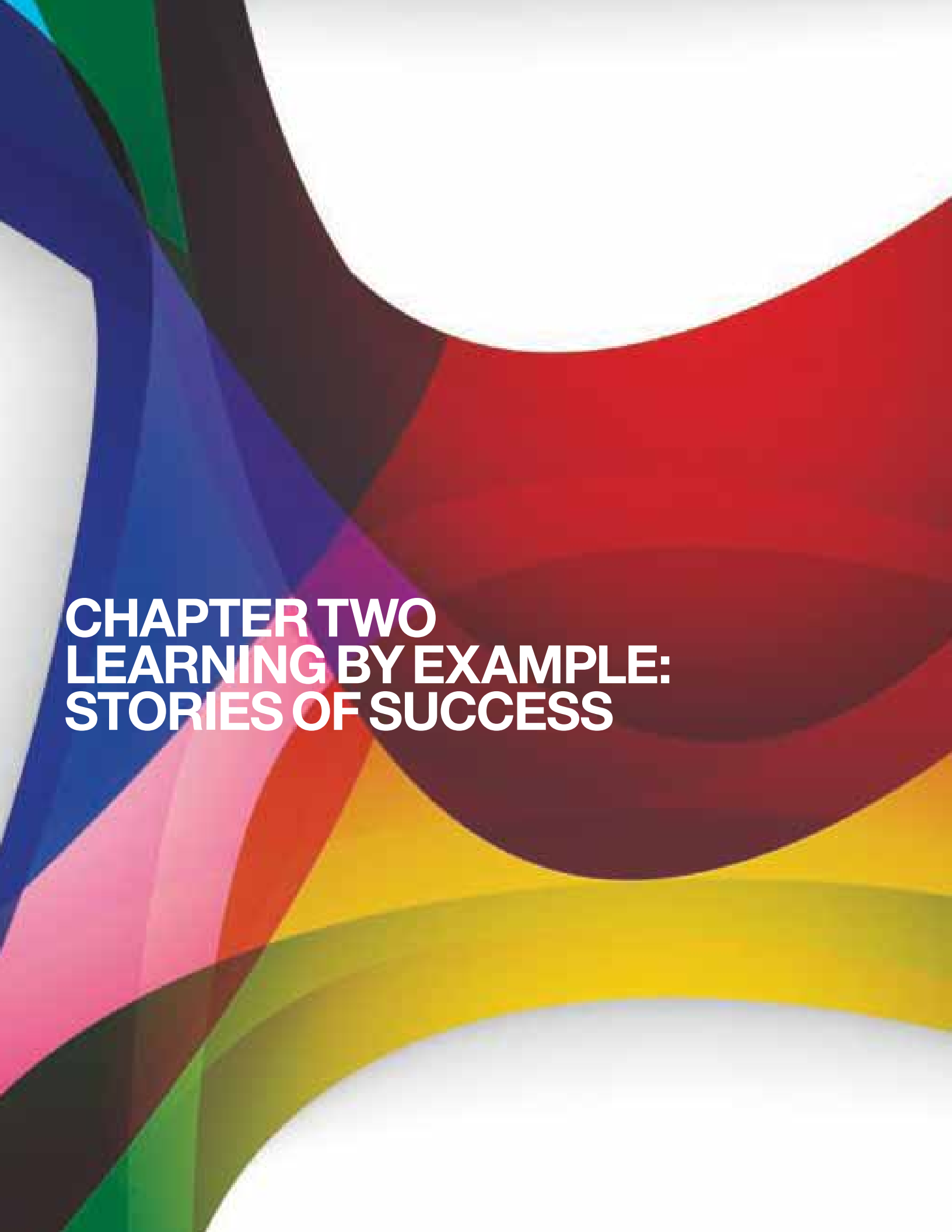
1.4 Trouble ahead: Unclogging the highway

In all nine of the countries we studied, the road from education to employment is under constant repair. Signs are missing and the traffic is heavy. Drivers tend to concentrate on the patch of pavement ahead, not on the long haul. The result, as our segmentation shows, is that only a small fraction of young people and employers reach their destination in a reasonably efficient manner.

The situation is not hopeless. Not only do many educators and employers accept that they need to be part of the solution, but many also have proved distinctly ingenious in filling in some of the potholes. It is to these innovations that we now turn.



to
a nurse



CHAPTER TWO

LEARNING BY EXAMPLE: STORIES OF SUCCESS



Although the education-to-employment highway operates in conditions that are far from ideal, ingenious and motivated drivers have devised strategies that make it work. We found 100 of them across 25 countries.¹ Their stories form the basis of this chapter.

Is there a better way?

 We have seen inspiring and effective education-to-employment solutions at work around the world, driven by governments, educational institutions, industry associations, individual companies, and nongovernmental organizations (NGOs). Some come from the developed world, others from emerging economies. Some are costly while others deliver results for as little as \$100 a student. Despite this diversity, these initiatives share one key attribute that is crucial to their success at improving outcomes: education providers and employers step actively into each other's worlds, interacting intensively, often on a near-daily basis. For example, employers may help shape the curriculum and offer their employees as faculty, while providers can provide workplace-simulation environments for learning.

In the most innovative programs that we observed, employers and education providers approach the three critical intersections (enrolling in postsecondary education, building skills, and finding a job) not as a linear sequence of steps but rather as an interdependent continuum where finding a job can precede enrollment. In this chapter, we will discuss how these innovative solutions work at each point.

2.1 Enrollment

There are two key questions that define the front end of the education-to-employment problem: How can education and training be made more appealing and accessible to the young? And how can providers, governments, and employers encourage more students to take and finish the right courses to prepare them for where the jobs are?

The examples below explore real-world approaches that address these questions.

2.1.1 Get the information out

As discussed in Chapter 2, young people don't start or finish further education for two main reasons—they cannot afford to (“too poor to study”) or they don't see the point (“too cool to study”). Even among those who do, many are uninformed about their choices and end up regretting them. Their highway to the future is poorly marked, leaving them unaware of the various professional paths open to them, or how their economic standing might be improved by taking them.

To overcome this, the best programs make intensive and continuous efforts to engage young people and to provide them with the facts about what particular careers entail and how programs can help. To the extent that ignorance acts as a stop sign to youthful ambition—and a big one at that—information is the way to blow through it.

There are two steps:

Create a base of information: The first step is to develop detailed and comprehensive information about various occupations. While this information will benefit all youth, (as well as providers and employers), it will be of particular interest to the 26 percent of youth that are “struggling to get ahead” but are not well informed about career or educational choices. The collection of reliable, comprehensive data about job opportunities, wages, and training can help youth who are striving to get ahead to make the right choices.

The United Kingdom's National Career Service is a centralized repository of labor-market information published by the UK Commission on Education and Skills and the Sector Skills Councils. The Web site features comprehensive job profiles with information on salaries, hours required, qualifications, industry trends, and training programs.² The National Careers Service provides career counseling over the phone or in person. Since its launch in April 2012, the Web site has rung up more than a million visits and enabled 270,000 face-to-face sessions and 50,000 phone conversations. Users record an 85 percent satisfaction rate on average.³

The Colombia Labor Observatory, set up in 2005, provides a similar service, but its contents are more detailed, including details on the graduation and employment rates of every education provider in the country. Young people can view this information at the national, regional, state, and city level. There is a longitudinal dimension to this data, meaning that the trajectory of students is tracked over time (whether they went on to further training, which institution they attended, what they studied, when they found employment, what their starting salaries were, and so on.) So a teenager in Medellin could look up, say, the economics course at the local university and get an idea of the fates of those who went before. Usage has more than quadrupled since the launch, with 190,000 unique visits to the Web site in 2012, and the government is working to increase awareness of the site and to improve the Web site interface to increase traffic.⁴

Find your audience: Making these kinds of facts and figures available is only the start; after all, anyone with an Internet connection can find multi-gigabytes of data with a few mouse clicks. Information can help the “struggling” youth segment that cares about educational and career options but is not well informed; but something different is required to engage the “disengaged” youth segment, which is not only uninformed but doesn't care enough to look for information. (See the Youth Segmentation box in Chapter 2.)

The most successful examples of engaging the disengaged were achieved by aggressively pushing information not only to young people but also to their families and friends.

One way to do this is to embed career planning into the school curriculum, thus challenging students to think about their academic, personal, and career goals while still at secondary school. In Norway and Japan, career-guidance courses are formally scheduled into the school day. The Swiss system is especially thorough. In the canton of Bern, for instance, career counseling and lessons are mandatory for all students between the seventh and ninth year (ages 12 to 15). Students learn about various occupations—their typical working hours and wages, as well as academic and vocational training paths. They also visit companies and prepare for interviews, which can lead to internships. Parents are strongly encouraged to take part in the process, including attending a special introductory meeting designed to increase their awareness of various career opportunities. Translators are available so that immigrant parents can participate.⁵

India's Pratham Institute for Literacy Education and Vocational Training, an NGO, is a good example of how to push information in a context where formal structures are lacking. Outreach workers go door-to-door in villages to speak to youth and their parents about the opportunities on offer with blue-chip companies such as the Taj Hotels and Larsen & Toubro, and about the long-term benefits that further training could bring. Pratham also engages community leaders—from village elders to local officials—to secure their support as advocates in order to encourage youth to enter Pratham-run training programs. Begun in 2006, there are now five such programs. They have trained over 10,000 young people so far, most of them disadvantaged and lacking in formal education. The employment rate for its most successful courses, like hospitality and construction, is close to 100 percent.⁶

But how do we change students'—and parents'—views of vocational training? We change them by switching the subject from academic versus vocational to the opportunities of professions as a whole.

2.1.2 Addressing social perceptions

There's no other way to say it: vocational training lacks cachet. We have seen in Chapter 1 that while the majority of youth believe that vocational training is more helpful than an academic track in finding employment, less than half of those who find it more appealing actually enroll in these programs. Reducing the stigma attached to vocational tracks or professions would go far toward matching young people to the right occupations. As things stand, too many succumb to the social pressure to go to college, even when they don't want to attend.

But how do we change students'—and parents'—views of vocational training? We change them by switching the subject from academic versus vocational to the opportunities of professions as a whole. There is a perception among many, for example, that going to college is necessary to get a good job with a good salary, or that skill-oriented jobs lack long-term prospects. That is not so, and this is the story that needs telling.

Siemens testifies to the difference such an approach can make. In 2011, when the German company opened a cutting-edge gas-turbine facility in North Carolina, it realized it needed workers with higher levels of skill and precision. When Siemens began to try to recruit young people, though, it found that the idea of working in a factory—even a world-class one—was not particularly popular, especially with the parents. The company addressed this problem by backtracking to the first intersection. It invited high-school students to tour the plant with their parents to get a firsthand impression. “Parents who used to say ‘absolutely not’ change their minds completely when they see [the facilities],” notes a Siemens manager. “You see robots and lasers and computers and realize it is advanced, modern-day manufacturing, which completely changes perceptions.”⁷

South Korea's Meister Schools provide an example of how the government can work to recast



I am a
fireman



vocational tracks as a path worth pursuing, even in a culture that places extraordinarily high value on academic achievements. (South Korea has one of the highest university enrollment rates in the world.)

Due to the strong bias against manual or technical work, employers in Korea are struggling to find talent for skilled trades. To attract more students for these roles, the Korean government started transforming a subset of existing vocational schools into Meister Schools in 2010. (“Meister” is German for “craftsman.”) The government pays the students’ tuition, room, and board; the students are referred to as “young meisters.” The whole idea is to create a sense of status and address the social stigma attached to manual or technical work. While the schools are very new, the effort seems to be beginning to work, with high demand for each seat.

The Korean government was also careful to position the Meister Schools as a first step toward further education if this is what the student wanted and needed, instead of being a one-time credential that carried no further opportunity for advancement. To that end, schools have also been working with universities to ensure that their vocational curriculum allows for a seamless transition to a university academic pathway if so desired.⁸ The Meister Schools are new, but they do seem to be part of a real change taking place. In 2009, 73 percent of vocational-high-school graduates went on to college and only 19 percent into employment; in 2012, 55 percent are pursuing college while 33 percent have found a job.⁹

2.1.3 Making education affordable

While information can pique youth interest in further education, cost still remains the number-one barrier. Among the youth surveyed, 31 percent cite cost and 20 percent cite the need to work as the reasons for not continuing their education.

Traditionally, the solution to this has been simple: more money. Governments and education

providers have devised numerous ways to provide additional funds for economically vulnerable populations through scholarships and subsidies. For example, the United Kingdom has made £3.6 billion available to its newly formed Skills Funding Agency, with priority toward training young adults, the low-skilled, and the unemployed.¹⁰ In Australia, the National Workforce Development Fund has been authorized to allocate \$700 million over the next five years toward training for priority skills, to be co-invested with the private sector and administered through the sector skills councils.¹¹

India’s Pratham is an example of a provider experimenting with ways to increase postsecondary access for the poorest youth. In “Learn now, pay later,” students pay 30 percent of tuition during the duration of their course and the rest in installments after they have secured a job and started earning. Approximately 1,000 students have chosen this option since it was introduced in July 2011, and steady repayment from graduates is in progress. In “Education for education,” Pratham provides skills training to youth who volunteer in its tutoring and mentoring programs for primary-school students. Since April 2011, 60,000 youth across 17 states have been trained in digital-literacy skills. Buoyed by strong positive feedback from the youth, Pratham expanded this training in 2012 to include foundational employment attributes, such as business language, English, and social skills.

Providers have also been experimenting with ways to reduce their cost structure, from leveraging technology to reduce the cost of expansion to hiring less experienced teachers and providing them with top-up training on the job. These measures will be discussed in Chapter 3.

Spread the costs among stakeholders: By involving employers in financing the training and education of youth, we can allow more youth to enroll in otherwise unaffordable programs, as well as encourage employers to be more invested in the subsequent intersections of building skills and finding a job.

Employers are often cautious about investing in training. Among their concerns: it's not our job; it costs too much; we train them and then people leave for the competition. Even so, we found a number of companies that have developed ways to mitigate some of the risks and in the process build a positive case for doing more. These companies typically have a dire need for talent—whether because of the highly specialized needs of the work, the overall lack of talent in the region, and/or the sheer volume of people needed. Moreover, their corporate culture tends to value talent development. “People ask us why we invest so much to develop the skills of our people,” a Siemens executive explained. “I ask them instead, ‘How much is it going to cost you to not have skilled workers?’”¹² That's a good question.

And that is the question that Egypt's Americana Group has been answering. When the restaurant, food-processing, distribution, and retail company recognized that it was not getting the talent it needed, it joined up with the Ministries of Education and Higher Education to train people to work in their restaurants and food businesses. Students spend up to half of their time working (and earning wages) at Americana during the program. Americana also pays for their tuition and guarantees a position to graduates at the end of the program. Given the dearth of skilled labor in the region and the generally high turnover rate in the industry, Americana says the program is “absolutely worth it” because it provides them with a steady pipeline of talent.¹³

Newport News Shipbuilding (NNS), a specialized US shipbuilder, has done something similar with The Apprentice School. Every year, around 250 apprentices are recruited from thousands of applicants with a broad range of backgrounds (high school, college, military, internal applicants) to undergo training in 19 different trade programs (pipe fitter, electrician, machinist, and so on) and 7 advanced programs. The programs are four to five years in length. While they learn, students work at the shipyard in Newport News, VA. Eighty percent of The Apprentice School's graduates are

still employed at NNS ten years after graduation (even though they are not obligated to remain a single day), and most stay for decades. Graduates have also gone on to key leadership positions; they account for 44 percent of the entire production-management team, ranging from foreman to vice president. That makes The Apprentice School a huge cost saver for the company; by investing up front in acquiring talent, it saves down the line on expenses related to retraining and vacancies.¹⁴

Of course, for many employers, the costs may appear greater than the benefits. In these cases, sector-based collaborations and government incentives may be required to lower the entry cost. We discuss this in Chapter 3.

2.1.4 Getting students across the finish line

As we noted in the beginning of this chapter, the issue is not only about getting students enrolled but also about making sure they finish. While better-informed decisions and financial support will certainly help, there is more to do. It is possible to identify youth who are particularly vulnerable to dropping out, whether due to cost, lack of motivation, lack of academic preparation, and so on, and to provide the extra support they may require.

Strong community-based and personalized support: Year Up is a 12-month US program that targets vulnerable low-income young adults. Students spend the first half of the program in hands-on classes to develop both hard and soft skills, and the second half in a corporate internship.

Year Up students are required to sign a “contract” at the beginning of the program that spells out in detail what is required in terms of conduct and the consequences of nonadherence. This is meant to mirror the professional expectations in companies where Year Up students will intern and later work. Adherence to these guidelines is monitored through a system that costs students a certain number of points for certain types of

behaviors, such as tardiness or absence. Students earn a stipend to help support themselves while in the program, and this payment is tied to their performance; a 15-point infraction results in a \$15 dollar deduction from that week's paycheck. If students run out of points, they are said to have "fired themselves" from the program. The transparency and clarity of this system helps hold students accountable for their actions.

The students are not alone on this journey: these high expectations are complemented by a tightly knit social network of support including peers, staff, professional mentors, social-service professionals, and community-based partners. Students are clustered in groups (called "learning communities") of up to 40 to discuss their progress. These gather at least once a week, either to celebrate success or to discuss how issues can be addressed and what support can be offered.¹⁵

Eighty-four percent of Year Up's graduates are employed or attending college full-time within four months of completing the program, and employed graduates earn an average of \$15 an hour, the equivalent to \$30,000 a year.¹⁶ Referring to Year Up, the Economic Mobility Corporation concluded after an independent 2011 study that the program had "the most exciting evaluation results we've seen in youth employment in 20 or 30 years, and the first to show a really substantial earnings gain."¹⁷

Large-scale monitoring and systematic support: Year Up is a promising example of an approach that works successfully with a vulnerable population, but it is relatively small, with a cohort of 1,360 students in 2011. Miami Dade College, the largest campus-based community college in the United States, with almost 175,000 students, offers an example of how effective support may be provided on a much larger scale.

All incoming students are assigned an academic adviser who is responsible for supporting and monitoring their progress. Similar to Year Up's point system, Miami Dade is developing an

automated dashboard that alerts the adviser when any student pulls a risk trigger (for example, missing classes, falling grades); this is designed to help advisers manage their large caseload (each adviser has approximately 300 students) and enable them to intervene early and in a targeted manner. The adviser can then work with the student to deliver a tailored package of support, encompassing a range of interventions from remediation classes to counseling. Due to its philosophy of "intrusive advising," Miami Dade has a graduation rate of 61 percent, which is twice the national average, despite the high rate of disadvantaged youth that make up the Miami Dade student population (87 percent minority, 72 percent deemed "not college ready," and the highest number of Pell grantees, or those who are severely economically disadvantaged, in the nation).^{18,19}

As these examples demonstrate, providers can support youth in getting through programs by providing effective support services. In response, governments should consider providing more incentives to education providers to help their students complete their courses. One place to start is to build up information, for example, by tracking dropout rates by demographic factors. As the management mantra goes, "What gets measured gets managed." Measuring dropout rates can be an incentive to reduce them. Again, these measures will be discussed further in Chapter 3.

2.2 Building Skills

After getting youth enrolled, providers and employers must ensure that students are acquiring the relevant skills. This requires creating and delivering content that employers will value and students can absorb.

2.2.1. Designing an effective curriculum

Intensive collaboration between industry and providers to define required competencies at a detailed level: The best way to define a curriculum that is relevant in both achieving educational outcomes and employer requirements

THE HARD WORK OF SOFT SKILLS

One of the things we learned in our research is how highly employers value “soft skills.” But they are harder to define, distill, or express. As such, we have struggled to find good examples of training programs for soft skills that are as precise or focused as the technical modules found in the Automotive Manufacturing Training and Education Collective in the United States or the ones found in the Technical and Further Education system in Australia.

Part of the reason is that soft skills encompass such a wide range of concepts, from personal characteristics (confidence, temperament, work ethic) to social and cognitive skills (communications, problem solving). As a result, the term means different things to different people. For example, when we spoke with managers from a hospitality company regarding their expectations of teamwork, they told us the focus was on whether their employees possessed tolerant attitudes that are important in interacting with a wide range of guests. Asked the same question, an engineering executive singled out the extent to which the employees were able to work and think in cross-functional teams. Same concept, same words, two very different interpretations.

Providers and employers have improved their capabilities when it comes to describing technical tasks and competencies. It is time they do the same for soft skills.

What
Can
Next?

is for employers and providers to work together to figure out exactly what the curriculum should cover. While many providers gather input and feedback from employers, there are two keys to success: First, there needs to be intensive collaboration; second, both sides need to define their requirements at a very nitty-gritty level

The Automotive Manufacturing Training and Education Collective (AMTEC) offers an example of how this can work. To develop the AMTEC curriculum, high-performing technicians (not managers) from several auto companies outlined every task they performed and the competencies required for each. They then ranked these based on importance, developing a list of tasks common to the dozens of companies involved over several rounds of iterations. This was done for each specific activity, leaving no room for confusion.

Here is part of the list for a task titled “troubleshoot, repair/replace, brakes/clutches”:

- Inspect brakes for wear, leaks, damage, excessive wear on pads, using common hand tools.
- Disassemble discs and pads using Vernier calipers.
- Clean rotors using micrometer.

These steps are then supplemented by a set of competencies required, defined across several dimensions, such as calculations, communication, technology, and safety. For example, calculations cover “measure in decimals (thousandths),” “metric-measurement conversion,” and “basic math.”

Employers and providers in AMTEC worked together to distill all this information into a curriculum composed of 60 three-to-eight-week study modules spanning 110 core competencies, with each module focusing on specific skill sets.^{20,21}

Thanks to the strong collaboration between employers and providers and the detailed materials, the AMTEC curriculum provides great clarity. “We now know what to expect when we get a résumé from someone from an AMTEC

curriculum,” notes a manager from Nissan. “It’s a validation.”²²

Modular course design: Another interesting feature of AMTEC’s curriculum is its modular design, which gives students more flexibility in combining, sequencing, or spreading out their learning as required.

In the case of AMTEC, employers are able to run assessments on their current employees to identify exactly where the gaps are in their competencies, and ask that the provider deliver the appropriate modules for their employees. This makes for more efficient and targeted employee training.

Another example is Australia’s vocational education and training (VET) framework. As with AMTEC, the Australian curriculum’s building blocks are units of competency, which are defined based on the expected tasks in a given job role. Each VET qualification (for example, a certificate or an associate’s degree) requires the completion of a certain combination of competencies to ensure that the learner can perform in the chosen occupation. At the same time, training organizations have long combined these units in different ways to better meet the needs of their clients, offering statements of attainment for the completion of these short courses.

In 2009, the government formally made the delivery of such skill sets—units of interrelated competencies for a specific function—part of the national training framework. This move toward shorter modules aimed to increase the flexibility and responsiveness of the training system to reflect changes in industry. However, other benefits have emerged, including providing students with a stepping stone to larger qualifications and providing opportunities for existing employees to get a “skills top-up.” The number of skill sets available has increased rapidly from 178 in September 2009 to 924 in June 2012.²³

SME TRAINING

Many small and medium-size enterprises (SMEs) do not have the resources and capabilities to invest in comprehensive training. At the same time, they may struggle to find the right talent, due to the relative lack of resources in identifying and recruiting skilled people. It therefore makes sense to seek out third parties to help. This approach has succeeded in several countries, notably Korea and Morocco.

In South Korea, SMEs make up 99.9 percent of all enterprises and 86.8 percent of all employees (12 million workers).²⁴ To boost the quality and productivity of this workforce, the government launched a program in 2001 that encourages large companies to provide training to their SME partners, by subsidizing up to 80 percent of their costs.

SK Telecom has taken up this challenge and now provides training to the SMEs in its value chain. This takes the form of sharing its extensive eLearning library as well as more traditional training courses that are designed according to specific requests of the SMEs. The eLearning library includes task-focused training modules as well as leadership, values, and functional training to build work-related skills to a “master-level talent.” SK Telecom has trained almost 210,000 people so far using this approach. The company sees this as a worthwhile investment: its SME partners are more productive, while communication and goodwill have improved.²⁵

In Morocco, SMEs make up 93 percent of all registered businesses, 46 percent of the workforce, and 38 percent of GDP.²⁶ In 2005, the government’s “Emergence Program” named the automotive industry as one of the seven priority sectors designated to boost Morocco’s competitiveness in exports, increase GDP by 50 billion dirhams (\$5.7 billion), and create more than 220,000 jobs. To develop the supplier base for the automotive industry, the government encouraged Renault to set up a plant in Morocco and established the Institute for Training Automotive Professionals in 2011. The government provided the initial capital investment while Renault developed the curriculum and trained the faculty. The Moroccan government will subsidize operating costs until 2014; after that date, the industry will pay. The program will train Renault’s 6,000 employees until 2014, after which point, it plans to expand its target to the 30,000 employees of Renault’s 125 or so SME suppliers.²⁷

2.2.2 Delivering skills the right way

Once the necessary skills and competencies are identified, the next challenge is for students to learn them. Here again, employers and providers must work together to deliver content in a way that ensures that students are learning the right skills.

Providers stepping into the employers' world: “I hear and I forget. I see and I remember. I do and I understand,” goes an old Chinese proverb. There are many studies that conclude that hands-on (or practicum-based) learning is effective. Young people in our survey agreed: a majority said they found hands-on learning the most useful mode of instruction.

There are several ways that providers can create hands-on learning experiences for their students.

Bring the classroom to the workplace: The most common model is to place students in internship or apprenticeship opportunities to acquire hands-on experience on the job. Students spend a portion of their time at the workplace, applying their classroom learning in real-life situations. One of the better-known examples is the German dual system, where apprenticeships and schooling are combined in the curriculum.

While there are varying degrees of how to make use of these apprenticeship-type opportunities—from externships of a few days to full apprenticeships where students split their time between school and the workplace—it is clear that the more time students spend at the workplace, the more hands-on experience they acquire.

It is for this reason that programs like Americana (discussed earlier) or Apprenticeship 2000 (see box at the end of the chapter) make sure that students spend considerable time (up to 50 percent) at the employer site, applying their classroom learning to real-life problems.

This model can, however, be difficult to implement at scale and is largely dependent on how engaged

employers are. Providers can address this issue by monitoring students' experience and building long-term relationships with committed employers to ensure that students are exposed to significant learning opportunities during their apprenticeship.

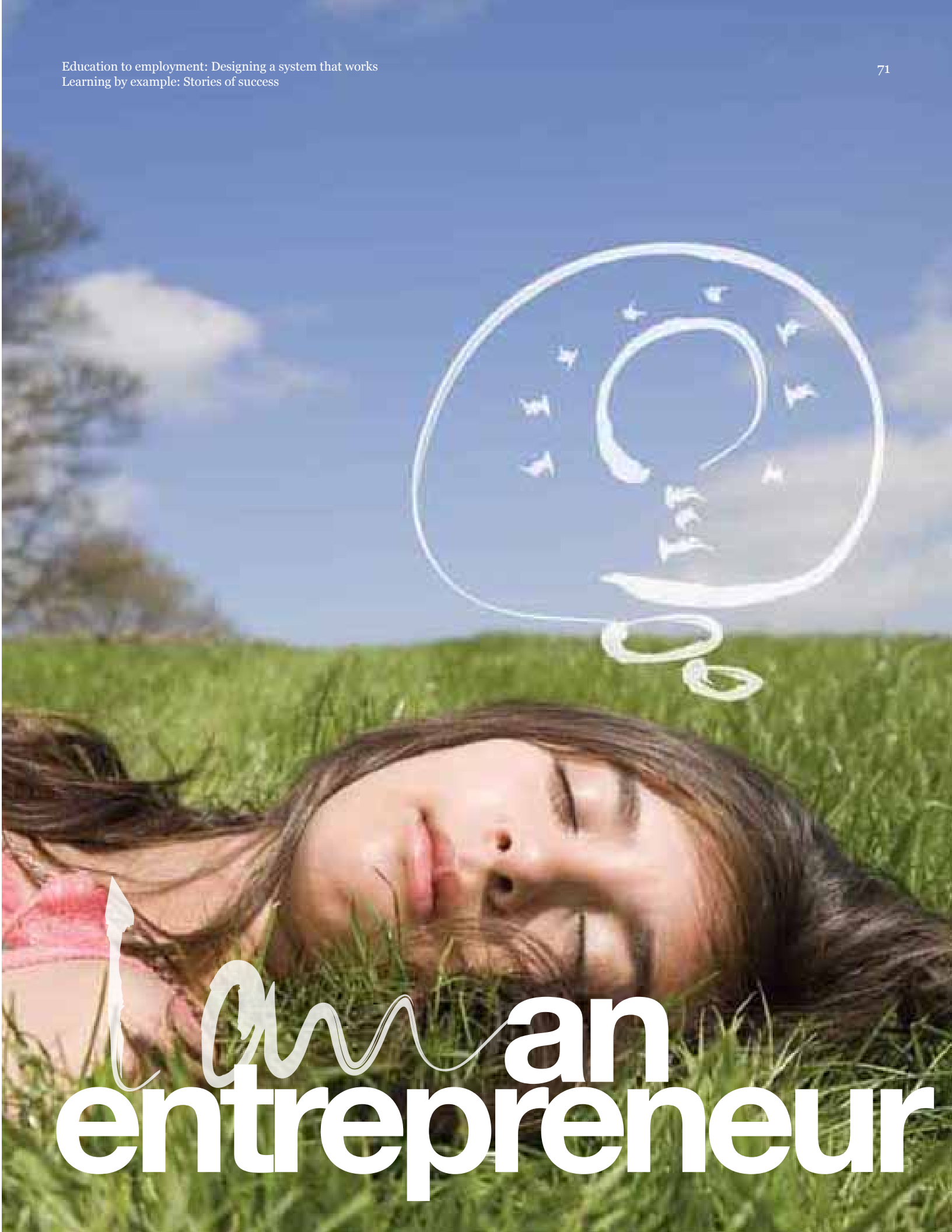
Bring the workplace to the classroom:

Given the potential difficulties in setting up large numbers of apprenticeship opportunities, providers are also using physical simulations, such as setting up a faux hotel (India) or creating a startlingly realistic coal mine (Australia). This can also be done through computer/digital simulations, which immerse users in a virtual world to enable the application of knowledge and skills, from marine navigation (Australia) to business-process optimization (United States).

At the TAFE Challenger Institute of Technology in Perth, Australia, for example, there is a fully functioning replica of a gas-processing plant (minus the actual gas) to train students in plant operations, while the TAFE Box Hill Institute features a fully equipped hospital ward, including an intensive-care unit with sophisticated human dummies. At Nettur Technical Training Foundation, a group of elite technical schools in India, students working toward a new certificate in cell-site maintenance get hands-on practice with an actual working telecommunications tower installed on campus.²⁸

The cost of such facilities can be high, depending on the industry and the setting required. The use of computer simulations can thus be a good alternative.

At the TAFE Sydney Institute, students use computer-based marine simulators to learn technical and practical skills for a variety of vessel classes. The training facility can simulate most ports in the world, as well as a wide variety of sea and weather conditions. Students can do the simulations individually or in teams, and their performance is recorded to aid the learning process through debriefing and for further evaluation.²⁹



Can an entrepreneur

Similarly, “serious games” (see Chapter 3 for a further discussion) uses the technology of computer and video games to simulate real-world environments or processes that users would encounter in their job. One such example is IBM’s INNOV8, a serious game created to educate users on business process management (BPM). INNOV8 was originally designed to help college students understand how BPM affects an entire business ecosystem. Within a few months of its release, over 1,000 universities around the world had downloaded the program—students found that the ability to see how their choices unfolded (for better or worse) brought their lessons to life in a way never before possible. Its popularity prompted IBM to release it as a training tool for IT and for other corporations—including IBM’s own employees.³⁰

Employers stepping into the providers’

world: Providers are not the only ones with a responsibility or mandate to deliver skills; employers can also step forward to ensure that youth are learning the required skills.

Some employers, like Americana or the employers in AMTEC, partner with education providers to ensure that the content of the curriculum is aligned with their needs. Others go one step further, taking on the responsibility of providing training and education themselves.

Wipro in India is an example of an employer that has taken its in-house training program to the next level. It hires university graduates (approximately 13,500 in the 2012–13 recruiting year), both with and without engineering degrees, and prepares them to be programmers. The new hires go through a three- to four-month training period where they learn not only soft skills but also general programming skills and specialized skills closely related to about 60 specific technology areas, such as Java for e-commerce. The training program is closely linked with the operations of the company, with the business side actively involved in everything from curriculum development to delivery of training to post-training mentorship and monitoring to ensure that the new hires are acquiring the skills that the business needs.³¹

Newport News Shipbuilding (NNS) is another such example. Due to the difficulty in hiring people with the specialized skills needed to work at the shipyard, NNS decided to start its own school. Operating continuously since 1919, The Apprentice School trains promising apprentices to be leaders throughout the organization. During their studies, apprentices spend time each week in classes studying the designed-for-purpose World Class Shipbuilder Curriculum and the remainder of their time in production in the shipyard, supervised by craft instructors, each of whom is a graduate of The Apprentice School. Apprentices earn a wage for each hour in the classroom and in the shipyard. Each trade in The Apprentice School is directly linked to the relevant department in the shipyard; every two years there is a formal program review of each trade; daily collaboration helps troubleshoot issues and implement changes as required. The strong connections between program and production ensure that NNS is building a fluid pipeline of competent leaders and loyal employees with operationally relevant skills.³²

2.3. Finding a job

Searching for a first job is difficult; so is evaluating the eager young people just setting out. Many of them don’t know how to market themselves in a credible manner. Job postings will often ask for “quantitative skills” or “strong communications,” but a diploma from a university often may not effectively signal one’s analytical skills or writing abilities. On the other hand, employers know that educational history and a few interviews can only tell so much, so they struggle too. At the end of the day, both employers and job-seeking youth risk not finding the right match.

There are ways, however, to improve the process. One of them is more effective signaling, to allow employers and youth to let each other know exactly what each is looking for and what each can offer. A second way is to build strong relationships between employers and education providers so that providers, who understand the strengths and requirements of both parties, are able to

help “match” graduates to employers. The final approach is to have employers be engaged much earlier in the education-to-employment journey by “prehiring” youth and influencing and sponsoring their training, ensuring a much better fit by the time the new hires start work.

2.3.1 Credible assessments and certifications

Historically, the university, community college, or polytechnic diploma has acted as a proxy for qualification; having a degree implied the possession of certain competencies. However, because most diplomas are based on completing a program that comprises many subjects and competencies over a long period of time, it is difficult for employers to identify exactly what skills a graduate possesses. While a diploma or degree still connotes a certain threshold of academic training (as well as personal drive), there is too much uncertainty and variance in outcomes.

Given this lack of clarity, a number of third-party providers are emerging to provide independent assessments. Countries like South Korea and the United Kingdom are going in this direction, but the movement has gone farthest in the United States.

One example is the WorkKeys® Assessment System, founded by ACT, which is best known for its college-admittance exam. WorkKeys is used across the United States to measure the extent to which an individual has the foundational (and advanced) skills required for success in the workplace. The assessments include reading for information, business writing, and applied mathematics, as well as soft skills such as teamwork (“the extent to which individuals choose behaviors that both lead toward the accomplishment of work tasks and support the relationships between team members”), “listening for understanding” (“the ability to follow, understand, and react to work-based processes”) and “fit” (“personal interests and values”). In addition, ACT has matched its assessment to the level of skills needed to be successful in more

than 18,000 different jobs. This helps employers identify how a potential candidate may fit in a particular position. Successful completion of these tests leads to the National Career Readiness Certificate (NCRC), guaranteeing to employers a certain level of readiness and thus improving their odds of hiring someone they will want to keep. As one personnel officer put it, “It gives you the ability to bring in the right people the first time.” To date, 40 states recognize the NCRC and one million people have earned the qualification.³³

The Mozilla Open Badges initiative is a more radical and experimental effort to create an alternative form of credentialing. As the creator of the popular Firefox browser, Mozilla’s approach is Web based. The premise of Open Badges is to enable people to earn recognition for skills and learning that take place online or outside a formal setting, and then to display them on the Web. At the same time, badge issuers (businesses, NGOs, clubs, schools) can create tightly focused courses of instruction and have complete control over standards. Mozilla, for example, has created its own badges for things like mastery of JavaScript. Both issuers and recipients make use of a system platform that is free and open to all. Launched in June 2012, the initiative is attracting a good deal of interest. The US Secretary of Education called it a “game-changing strategy,” and the MacArthur Foundation gave \$2 million toward its development. NASA and Disney have already signed up as issuers.³⁴

The innovations discussed here are not definitive: these examples are still works in progress, with growing yet still irregular rates of acceptance. What makes a credential credible is a near-universal acceptance within the community it serves. As such, a proliferation of third-party credentials without widespread acceptance can create more confusion than clarity. What is required, then, is to focus on one or two credentialing systems, by function or industry, recognized by all (or almost all) relevant stakeholders. One model is the certification process for accountants. To be certified, and

THE IL&FS WAY: LARGE-SCALE INTERVENTION IN INDIA

Over the last two decades, India's economy has grown faster than its pool of skilled workers. Business and government are worried that the gap between the demand for talent and the supply of it will hobble development.

If India is to succeed in even approaching its stated goal of training 500 million skilled workers in the next decade, it needs to identify effective interventions that can be scaled up massively, rapidly, and affordably. Over the last few years, the country has seen a large number of for-profit ventures enter this space—one of the more promising ventures, IL&FS Skills, is profiled here.

IL&FS Skills was founded in 2007 as a for-profit venture in skill development. In 2011, it became one of approximately 50 private partners selected for support by the government-funded National Skill Development Corporation. It operates 18 skills schools (hubs) and 355 skills centers (spokes) in 24 states. These schools and centers offer instruction in 27 trades, including textiles, welding, hospitality, and retail that are generally one to three months long.

IL&FS emphasizes serving youth from poor, rural areas and offers them a compelling value proposition: finish the course and we have a job for you. IL&FS Skills starts by securing commitments from more than 1,000 partner companies to provide job placements for trainees. Then it works with local governments and nongovernmental organizations to enroll young people, holding informational workshops all over the country. The organization goes to rural villages (much like India's Pratham in our previous section), to explain to young people the benefits of IL&FS Skills training and the career prospects they can expect afterward. Given that 21 percent of the Indian youth in our survey cited not seeing the value as the reason for not enrolling in postsecondary training or education, this process helps ensure that youth actually enroll in IL&FS courses and are trained with the skills that companies are demanding.

Because enrollment is tied to the number of job commitments, IL&FS trainees are guaranteed a job after graduation, typically with a starting wage of around 5,000 rupees (\$100) a month.

Once the young people decide to enroll, they undergo a series of selection assessments (for vision, dexterity, mechanical aptitude, and so on). They are then assigned to courses, taught by trainers who have at least four to five years of relevant industry experience. The curriculum is created in cooperation with industry partners. Students live in dorms attached to the schools; their training includes instruction in the life skills they will need if they migrate to cities to take jobs. Each IL&FS trainee also undergoes mandatory training on foundation English and digital



Simulated training:
a welding workshop
(left) and a simulated
hotel (right)

literacy and leaves the IL&FS training center with a personal e-mail ID and the ability to book his or her own train ticket online, for example.

IL&FS Skills courses also emphasize learning by doing. Classes are held in simulated workplaces, such as a sewing factory (complete with shift sirens) or a hotel lobby, to help students familiarize themselves with what might be entirely new environments.

To deliver high-quality, consistent information to large numbers of people across India, IL&FS Skills has created a proprietary technology, K-Yan—a sort of combination projector/computer that uses multimedia forms to deliver training (in English and six regional languages). Anyone watching the content can follow along with minimal human intervention. For example, a module on how to attach a central processing unit (CPU) to a computer motherboard shows two images, one of the entire motherboard and one that zooms into the part of the motherboard where the CPU is to be installed. Then the K-Yan program takes the student through the process in small steps, such as “relax the clip by gently sliding it outward” or “lift the flap on the socket.” The segments are easy to follow, and students can view them repeatedly and learn at their own speed.

With the support of K-Yan, IL&FS faculty—who all have industry experience—are able to teach classes with only minimal training in pedagogical skills. As a result, a month-long course at IL&FS Skills costs about one and a half to two times the expected starting salary per student. (Additional funding support is also sourced by IL&FS, by tapping into corporate-social-responsibility funds, philanthropy funds, and government and employer sponsorships for those who need it.) As a result, IL&FS has gotten very big, very fast: in 2012 alone, it has trained 100,000 young people. (Note, however, that India’s goal is 500 million.)

IL&FS Skills operates along the entire education-to-employment highway—and then beyond. Not only does it start with the engagement of employers, it ends by monitoring graduates. For at least a year after leaving, student performance is watched and measured.³⁵

IL&FS Skills offers an example of a provider that is highly proactive across all three intersections with end-to-end management for its students.

As IL&FS continues to scale up, maintaining its early indicators of quality and impact will be a priority.



Screenshots from a K-Yan computer technician course

APPRENTICESHIP 2000: EUROPE COMES TO NORTH CAROLINA

In the mid-1990s, two German companies, Blum (hardware) and Daetwyler (high-precision machines) wanted to secure a pipeline of employees with the specialized skills their North Carolina factories needed. Specifically, the two companies were looking for people trained in mechatronics, a multidisciplinary field that combines the understanding of mechanical, electronic, computer and systems, and software engineering. Due to the sophisticated nature of their skills requirements, the two companies worked with the Central Piedmont Community College (CPCC) in Charlotte to create a European-style apprenticeship program, but with a distinctly American pitch: “Free college and a paycheck!”

Students who complete the program are trained as skilled machinists, tool-and-die makers, injection-molding specialists, and technicians. They earn both an associate’s degree (in manufacturing technology) as well as a journeymen’s certificate. They get paid \$9 an hour while studying and are guaranteed a job when they finish. Over the years, six more companies that share the need for these skills have joined the consortium. These eight companies, which are not competitors, agree to a common curriculum, recruit as a group, and promise not to poach employees.

The selection process is rigorous. Interested students are first screened for academic aptitude and behavior; those who make it through are invited to an open house (with their parents) where they tour the factory and learn more about the program. Applicants then go through four more days of testing, and those who are admitted are matched to a company. Last year, 68 students started the process, and 12 were selected.

“The most important criterion when selecting candidates is, ‘Are you able to learn?’”

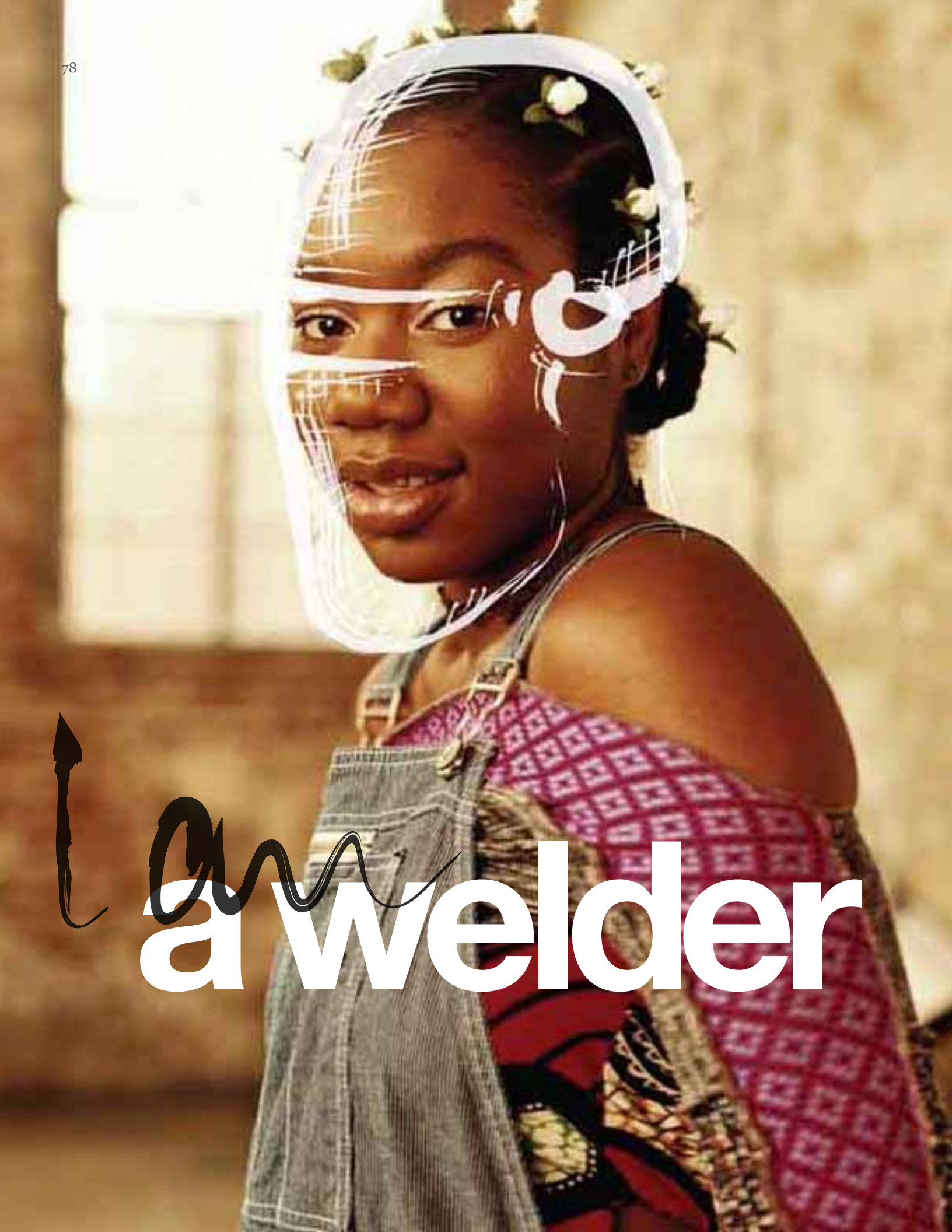
CPCC worked with the eight companies and the North Carolina Department of Labor to create a curriculum that met company needs and state standards. Apprentices spend about half their time in school and half on the plant floor, working with a designated mentor.

The course takes about 8,000 hours to complete and costs employers up to \$175,000 per graduate. That’s comparable to a degree from a private four-year university, but due to the sophistication of the skills required, the companies believe the investment is worth it. Siemens, one of the coalition members, estimates that a wrong cut by a machinist can easily cost \$250,000.³⁶

“We are convinced they [the apprentices] are going to be the smartest employees we are going to have”

Apprenticeship 2000 is a small, specialized program. Nonetheless, it has already attracted interest among other players that want to replicate its model.

Is my
degree
worth it?

A young woman with dark skin and hair is the central figure. She has white paint or clay applied to her face in a grid-like pattern across her forehead and cheeks, and a large white circular design on her right cheek. She wears a white headband adorned with small white flowers. Her attire consists of denim overalls over a red and white geometric patterned top. The background is a warm, textured wall with a window on the left.

Lawwelder

therefore work as a certified public accountant (CPA), individuals must pass the Uniform CPA Exam, which is designed by the American Institute of CPAs. The CPA exam is accepted by practitioners, end users (corporations and government), and regulators as the standard for the whole profession.

2.3.2 Matchmaking

Relationship-based hiring: In a number of cases, education providers can create such strong relationships—and credibility—with employers that they can be practically certain all its graduates will find work.

In Japan, many companies recruit directly from the KOSEN schools. These hybrid high schools/colleges serve about 50,000 math- and science-oriented students who like building gadgets. Students start at KOSEN schools at age 15 and get workplace internships in addition to hands-on and academic training. Due to the excellent reputation KOSEN graduates have earned, employers actively recruit them. KOSEN reports that graduates have 15 to 20 job postings to which they can apply. KOSENs generally have strong and often long-standing relationships with local employers, and faculty members help match students with the right companies. Once a good match is identified, the school writes a letter of recommendation, and after a round of assessments and interviews, the employment is secured.³⁷

Niche skills brokers: There are also discrete populations of job seekers that need additional support in bridging the gap between building skills and finding a job. In these instances, different programs and services have emerged to fill specific niches in the matchmaking process.

Orion, a recruiting firm in the United States, specializes in translating the skills acquired by US military veterans into terms recognized by industry. Working with Siemens, Orion helped to increase the number of veterans hired from 100 to 200 a year to 500 in 2011.³⁸ In Saudi Arabia, Glowork matches talented women with companies

willing to employ them. Glowork found that larger companies were not hiring women because they didn't know how to find them and were worried about incurring additional costs due to segregation laws in the workplace. Glowork bridged both these gaps, first, by offering an online platform for female job seekers to connect with employers, and second, by providing an IT solution that enabled businesses to employ and monitor female employees working from their homes. Glowork has successfully placed about 6,000 women and is working with the Ministry of Labor to provide support to the 1.2 million female unemployment-benefits recipients.³⁹

2.3.3 Treating the intersections as one continuum

Some of the most promising and interesting programs cross the entire education-to-employment highway: rather than treating enrollment, building skills, and finding a job as discrete and sequential, they engage across all three intersections. In these cases, finding a job precedes enrollment: Providers will guarantee their students a job, and employers will “prehire” youth and oversee—and even sponsor—their education, offering a full-time position at the end of it. By treating the three intersections as an interdependent continuum, employers are able to ensure that young people are equipped with the right types of skills and youth have some sort of guarantee that the education they receive will be relevant and valuable at the workplace. In addition, both parties will have the assurance that they are the right fit for each other by the time the young job applicant starts work.

China Vocational Training Holdings (CVTH) is the largest training institute for China's automotive industry; it has a 60 percent market share nationally and up to 80 percent in key provinces. CVTH is an example of a provider that promises job placements and matches graduates to jobs. Its Department for Employment cultivates and maintains relationships with about 1,800 employers, which provide internship placements

as well as “promises to hire.” CVTH maintains a database of employers with details such as the size of the company, demand requirements (how many workers they need, type of worker required), and location and updates these details on a monthly basis. Prior to graduation, CVTH surveys students on their ideal job placement (for example, location, type of work, type of factory) and matches the students’ preference on the basis of this information. CVTH also provides postgraduation support to students for a year in the event that students find they are not happy with their initial placement. Three months after graduation, the employment rate is 80 percent, and CVTH records suggest that those who have yet to secure a job typically go on to pursue further education or have changed industries.⁴⁰

Employers can also take the initiative, prehiring youth and not only paying for their training but guaranteeing them a job at the end of it. This approach is typically seen in instances where there is an acute skills shortage, for example, when the required skills are so specialized that the employer needs to lock in talent or when employers need to find a high volume of talent in a short period of time. In the best cases, employers also engage early on with youth to cultivate their interest. Both Newport News Shipbuilding and the Americana Group are examples of such an approach. (See “Apprenticeship 2000” in box at the end of the chapter for another example.)

Another is Go for Gold in South Africa. Formed in 1999 as a public-private partnership between the Western Cape Education Department, Neil Muller Construction (now NMC Construction Group), and the Amy Biehl Foundation, Go for Gold is designed to attract applicants from disadvantaged communities for entry into the construction, building-services, and engineering fields.

The program begins by identifying promising students in grade 11 (the second-to-last year of secondary school). These young people are given tutoring and training during their last two years of secondary school in areas such as math, science,

and general life skills. But before enrolling in university, they are assigned to one of the 20 or so participating companies to gain a year of paid work experience; this is to test their interest and suitability for a career in the industry.

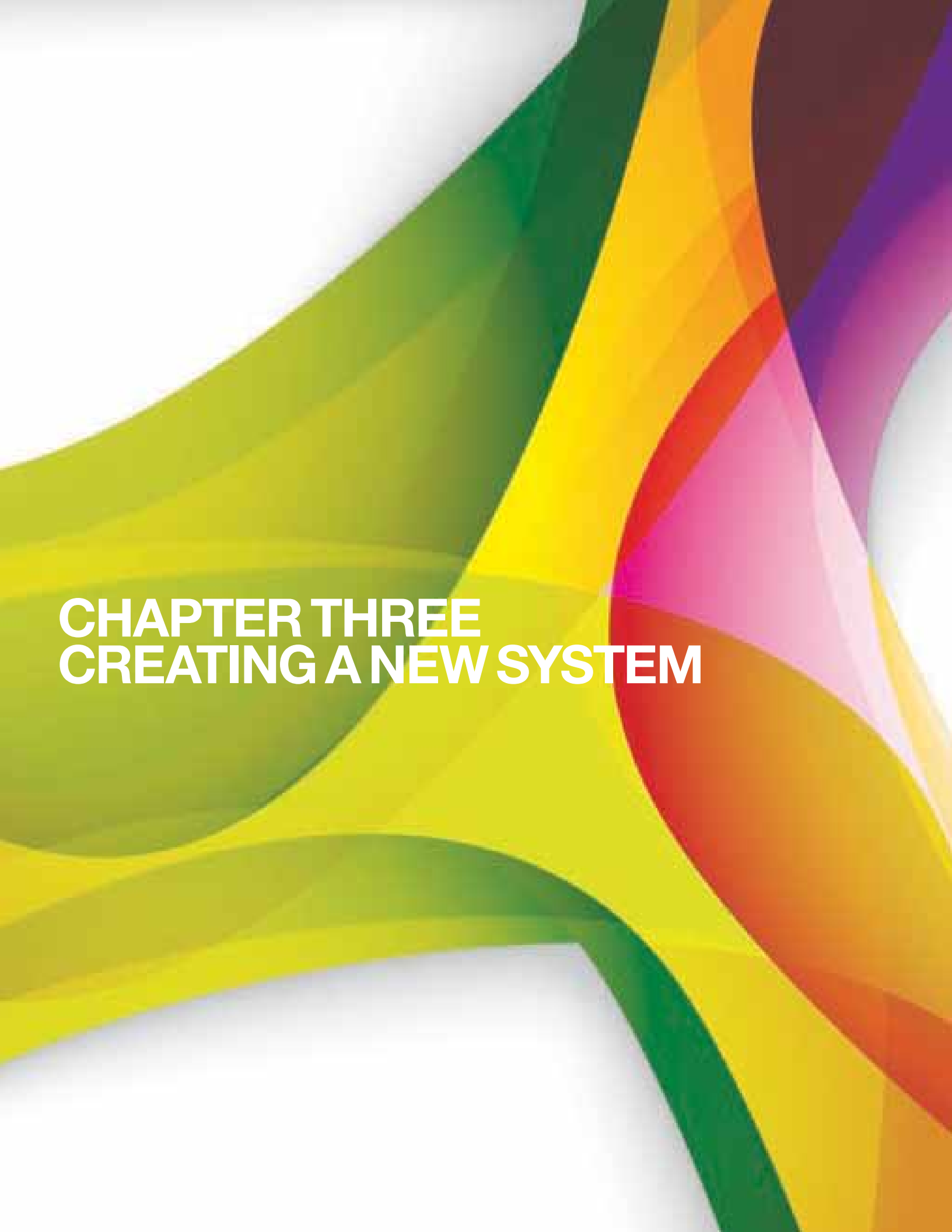
The company can then choose to sponsor them through college and guarantee them employment after graduation. Throughout the entire program, mentoring ensures that participants are guided, monitored, and assisted in making informed decisions about their career and their future. Companies participate not only because it is regarded as a good form of corporate social responsibility but also because it is a great way to recruit. “Because of the way [the] program’s run, and the values that we instill in these young people,” explains the director of the program, companies “know that it is a good investment.” So far, 360 students have gone through the program, and almost two-thirds are still working in the industry.⁴¹

What all these examples show is that it is possible to build a sturdy bridge between secondary school and employment. To do so, however, requires a high degree of trust and cooperation. Education providers need to prove that they can deliver on workers’ business needs. Employers need to work with providers to create the right training. Students need to step up and get the qualifications that the business community wants.

And then they all need to find one another.

A young woman with dark hair is standing on an outdoor basketball court. She is wearing a white zip-up jacket with a small black logo on the left chest and grey athletic pants. She is holding a red basketball with both hands in front of her. She is wearing a white protective face mask that covers her nose and mouth, with a mesh screen in front. She also has a white headband or hairnet on her head. The background shows a chain-link fence, a basketball hoop, and some trees under a clear blue sky.

I am
a surgeon



CHAPTER THREE

CREATING A NEW SYSTEM



As the previous chapter demonstrated, there are pockets of excellence around the world that are changing the way youth, education providers, and employers negotiate the education-to-employment highway. Unfortunately, these success stories are the exceptions, not the norm. To correct this, the current system's underlying structures and incentives need to change. There are two priorities: creating more successes and scaling them up to serve the millions of youth who need them.

*How do I
find a job?*

» **In every success story discussed in Chapter 2, the different stakeholders interacted intensively and frequently. They also went well beyond their traditional areas of activity: employers got involved in education, and educators played a bigger role in employment. Some also simplified the journey by packaging training with the guarantee of a job upon graduation, or even by prehiring trainees. The problem, though, is that there isn't much incentive for stakeholders to pursue such innovations; as a result, excellence is very much the exception.**

Here's another problem: no single stakeholder has an informed perspective on the entire education-to-employment system. While young people have the most to gain, they are poorly informed and not in a position to develop solutions. Providers and employers are better equipped but tend to focus only on their stretch of road. Employers have a simple priority: recruit the best candidates. They naturally focus on the third intersection (finding a job) and engage little on what youth decide to study (the first intersection) or on what skills they acquire (the second). Education providers are mostly concerned with the first two intersections—attracting students to their programs and delivering high-quality instruction. Work placement is a lower priority.

At the moment, it takes extraordinary investment, innovation, and leadership to move the needle. The need is to establish practices and principles that can make success routine. We want every stakeholder to have a stake in the success of the others and for them to meet one another, without colliding, at all three intersections. For this to happen, there needs to be a completely new system of education-to-employment—not an improved version of today's fragmented model.

3.1 Improving the odds of success

The most active and imaginative educators and employers are creating solutions despite systemic weaknesses. We expect them to continue to do so, but that will not be enough. Three interventions are required to get more and better innovation:

- *collect and disseminate data* to educate stakeholders, build transparency, and manage performance
- *initiate more sector-wide collaborations* to build industry consensus and share costs of improving education and training
- *create an education-to-employment "system integrator"* that coordinates, catalyzes, and monitors activity

Let's look at each of these in turn.

3.1.1 Intervention 1: Collect and disseminate data

Transformation requires good information. Consider the revolution in data collection, reporting, and analysis that started with the OECD's Program for International Student Assessment (PISA) in 2000. The breadth and depth of information collected through PISA allowed countries to benchmark their performance against one another and to understand which interventions were successful in raising student outcomes. PISA made it clear which countries were succeeding—and why.

Education-to-employment systems lack PISA-quality data.¹ Fewer than half of youth surveyed said they had the right information to decide whether to pursue further education or understand what programs

offered the best economic returns. What is needed is data that can be used to educate stakeholders, build transparency, and manage performance.

Collect, package, and push good information about career options and training pathways:

Young people need to be able to make informed choices about their career and education. In some cases, this may simply be a matter of aggregating data that already exist but are scattered among different sites. In the United States, Economic Modeling Specialists International has developed a Web-based program, Career Coach, that aggregates data from 90 federal, state, and private data sources, including the Department of Labor, the Census Bureau, and Indeed.com (a job-listings site). This database can provide timely information on local employment (job seekers can set a search radius) such as current and projected job openings, estimated earnings, and specific educational programs that will prepare an individual for a given occupation. Education providers can purchase access for their students to this database on a subscription basis.²

In most cases, the data required must be collected from scratch and built up. This was the case in Colombia when the Ministry of Education established its Labor Observatory for Education in 2005. The ministry started by tracking student movements over time—where they went to pursue their postsecondary education, what qualification they graduated with, where they obtained their first job, and so on.

Seven years on, those bits of data have become important metrics. Users can look up employment rates by qualifications, programs, and cities; they can also compare the performance of different institutions by graduation rates, employment, and salaries.

While these data are creating transparency that students in particular benefit from, more can be done. A ministry official noted, “Right now, the way we assess labor supply and demand is by making inferences. If starting wages for a particular field

Fewer than half of youth surveyed said they had the right information to decide whether to pursue further education or what programs offered the best economic returns. What is needed is data that can be used to educate stakeholders, build transparency, and manage performance.

look unusually low, and we see that there are a lot of recent graduates, then we suspect that we have a problem of oversupply. Ideally, we [will] have a macroeconomic model that can predict labor demand so that we avoid the problem completely. That's the next step for us.”³

Define what solutions work: Many providers and employers told us that they struggle to understand what interventions make a difference in improving student learning outcomes.

To combat this, in South Korea, the government established in 1997 the Korean Research Institute for Vocational Education and Training (KRIVET) to conduct research on national human-resource-development policies, labor-market trends, and vocational education and training (VET). KRIVET is also charged with disseminating this information to those who can use it. KRIVET regularly publishes working papers that evaluate the impact of various VET programs and highlight practices developed by education providers around the country.

KRIVET has also been an instrumental player in the rollout of the Meister Schools, a new network of high-quality vocational schools, providing them with detailed guidance. KRIVET published a 265-page instruction manual on how to open a Meister School. This provides step-by-step instructions, case studies, and templates on how to define the skills required, develop textbooks and student assessments, and create extracurricular activities.⁴

Nonprofits and think tanks can also be helpful. In the United States, for example, the Aspen Institute, Lumina Foundation, and the Gates Foundation are investing heavily in the study of interventions to figure out what works (and what doesn't), then spreading awareness through publications and annual “best practice” awards.

Develop metrics that encourage accountability for labor-market outcomes: In Singapore, the Ministry of Education requires education providers to conduct an annual survey of their

graduates about six months after graduation. The Graduate Employment Survey collects information on employment status (unemployed, employed full-time, employed part-time), and salary. This information is published to assist prospective students in making informed decisions about both the institution and course they are interested in. Enterprising providers who perform well on this survey use it as a marketing tool (noting, for example, that “graduates from our school have the highest starting salary of any other comparable institution”).⁵

The Australian government also requires all higher-education institutions to collect information on their graduates' employment activities four months after course completion. What is interesting about Australia's experience is that this information has been folded into the country's independent university rating, the Good Universities Guide, which has created a five-star rating system based on three graduate outcome metrics: success in getting a job, graduate starting salary, and “positive graduate outcomes” (based on the proportion of graduates getting a job or enrolling in further study). By making graduate outcomes one of the metrics that youth are encouraged to consider when picking a course or institution, education providers have greater incentive to pay more attention to the third intersection, finding a job.

3.1.2 Intervention 2: Initiate more sector-wide collaborations

Almost half of employers surveyed said they did not work with providers on matters such as curriculum design and teacher training. Even among those who did, partnerships are decidedly limited; only a minority report getting in touch as often as once a month. That is not enough: experience shows that the odds of success greatly improve when such interactions are frequent and intense.

The most transformative partnerships we have seen involve multiple providers and employers at

The most transformative partnerships we have seen involve multiple providers and employers at a sector level. Such sector-based collaborations are critical not only to create widespread industry recognition for the curriculum but also to enable delivery of training in a more cost-effective manner.

a sector level. Such sector-based collaborations are critical not only to create widespread industry recognition for the curriculum but also to enable delivery of training in a more cost-effective manner.

AMTEC, for example, began in 2005 as a loose coalition of providers led by the Kentucky Community and Technical College System and employers (auto-industry companies) that met to discuss common training challenges and solutions. The program also received a grant from the National Science Foundation to fund a central office. AMTEC really gained momentum, however, when Toyota opened its training facility and curriculum to competitors, and then defined and shared the 170 tasks that the Japanese auto company required its line workers to master.

Why would Toyota do this? Because it believed that the talent shortage was dire enough to warrant an

industry-wide solution. Other automotive-related manufacturers agreed and joined the initiative. Together, they narrowed down the 170 tasks in an iterative process designed to build trust and buy-in. The process ended in a curriculum of 110 core competencies. This is about to be rolled out in 2013 as the industry standard.

As AMTEC has grown, it also has formalized expectations of all provider and industry members so that there is no ambiguity about what the partnership entails. For example, industry members are expected to support career-pathway development and outreach activities conducted by their local community-college partner and to prioritize hiring qualified AMTEC participants. For their part, the providers are expected to share information on best practices and performance with one another through participation in annual workshops. AMTEC also requires employers or providers to join as a pair to ensure that the tight

linkage between demand for labor and the capacity to supply it is maintained.⁶

Apprenticeship 2000, another industry-led coalition, has a longer track record. It was founded by two German companies, Blum (hardware) and Daetwyler (high-precision machines), and now has eight members. As in AMTEC, the leadership of the founding companies was critical to getting the coalition off the ground. However, unlike AMTEC, members of Apprenticeship 2000 had to commit to covering the cost of training and wages over the 3.5-year period—to a value of about \$175,000 per apprentice. (AMTEC employers can decide whether to sponsor students through the training program.) Given the significant costs, participants needed to believe there would be a return on their investment. The coalition solved this by having all members sign a no-poaching agreement. It also set up a matching system to allocate trainees to companies; applicants rank companies in order of preference, and the selection committee, made up of representatives from all companies, adheres to these preferences as closely as possible.

3.1.3 Intervention 3: Create an education-to-employment system integrator

It's hard to know where you're going if you can't see the road, and in the case of education-to-employment, no one has a good view of the whole journey. Governments come closest; even there, though, multiple departments (such as labor, industry, and education) often have overlapping responsibilities and visions, making coordination impossible.

In India, for example, 20 different federal ministries and agencies are responsible for skill development. The Ministry of Labor and Employment oversees industrial and vocational training institutes. The Ministry of Micro, Small, and Medium Enterprises oversees entrepreneurship programs. The Ministry of Human Resource Development is leading efforts to integrate conventional and vocational education tracks. The government has also set up

the National Skill Development Corporation to promote private-sector-led skill development and to oversee the Sector Skill Councils in 21 priority sectors. Then there are state governments, which have their own programs.⁷

The more complex the web of stakeholders, the more difficult it is to see how the system is functioning. Getting such a perspective is critical; that is why we believe there should be a system integrator. Responsibilities should include the following:

- coordinating and integrating all activity, from R&D to the implementation of solutions
- catalyzing stakeholder action in priority areas
- monitoring and managing the quality of outcomes

Given the nature of these functions, public entities are best positioned to fill this role. The complexity of the labor and training markets in any given country may necessitate several integrators, one for each minisystem, whether this is defined by sector, region, or target population. Some countries are moving toward the creation of such integrators, although the exact form (and therefore the scope) of the entity varies.

Four examples show how a system integrator can work.

Integrator for the unemployed: Germany's Federal Employment Agency:

The Federal Employment Agency (FEA) is Germany's (and Europe's) largest public entity, with more than 1,000 offices and 115,000 employees. FEA delivers services to the country's 2.9 million unemployed. As a self-governing institution, it acts independently (albeit within a legislative framework).⁸

FEA has two primary responsibilities: to manage the unemployment-benefits program and to provide services, ranging from career counseling and job placements to funding for retraining. All of these services are administered by the FEA's network of branch offices, with the exception of the

benefit program for the long-term unemployed, which is administered in partnership with local municipalities. Under FEA's stewardship, the number of unemployed individuals fell from 4.5 million in 2004 to 2.9 million in 2011, and the average period of unemployment declined from 164 days to 136 days.⁹

FEA's focus is finding solutions to help the unemployed reenter the labor market and monitoring outcomes for the unemployed. Its research institute conducts studies on workforce requirements and development.

Integrator for the private sector: National Skill Development Corporation, India:

Founded in 2009, the mandate of the National Skill Development Corporation (NSDC) is to accelerate private-sector involvement in skill development. NSDC has a unique funding and governance structure. First, it is set up as a nonprofit company and therefore subject to all the professional aspects of governance of a company; second, it is a public-private partnership—49 percent of the equity of this nonprofit company is owned by the central government and 51 percent by industry associations.

The government's goal is to deliver training to 500 million people by 2022; NSDC is supposed to find initiatives that meet 30 percent of that goal. Through the provision of seed funding, it encourages the creation of large, private training programs that both meet the needs of the industry and leverage collaborative partnerships. This seed funding has enabled the emergence of a large number of for-profit skill-development entities. As of March 31, 2012, it had disbursed \$25 million to organizations that have trained more than 181,000 people.¹⁰ At least 50 new for-profit entities with significant aspirations have entered this space, which earlier was largely seen as government or nonprofit territory. NSDC's partner-selection process, while still being tweaked, is also starting to serve as a first filter for other investors.

The NSDC has also been charged with establishing Sector Skill Councils (SSCs) in 21 priority areas in order to develop national occupational standards and accreditation schemes, as well as support services such as faculty training and labor-market intelligence. NSDC provides seed funding for the SSCs, but it also acts as a convener and facilitator to bring key players to the table. To date, NSDC has approved the setup of 16 councils, 5 of which have begun operations.

It is too early to know what effect the NSDC will have. The SSCs are in very early stages, and many of NSDC's partner organizations are grappling with challenges as they get started. What is clear, however, is that the NSDC is generating a level of entrepreneurial activity and industry-provider dialogue that never before existed. As a next step, NSDC is seeking to build links with relevant federal and state agencies. In 2012, for example, NSDC commissioned several state-specific skill-gap studies, and it has been working with the Office of the Adviser to the National Council on Skill Development (the apex body chaired by the prime minister) to create an online monitoring system for the entire vocational and educational training system (public and private).¹¹

Integrator for a single sector: Prominp:

The Brazilian Oil and Gas Industry Mobilization Program (Prominp), created in 2003, is a coalition of government agencies, private companies, industry associations, and unions. The members include the ministers of mining and energy and of development, industry, and international trade; the presidents of Petrobras, the largest oil company in Brazil, and the Brazilian National Development Bank; the Brazilian Institute for Petroleum; and the general director of the National Organization of Industry.

Prominp's objective is to improve the operations of the country's oil and gas industry; to do so, it has identified three main activities:

- **Identifying talent requirements.** Prominp details how many people, with what skills, will be required when and where in the industry across

Brazil. It does this by analyzing the five-year pipeline of projects in the industry, and then breaks down the demand by skill profile, as well as by geography and timeline.

- **Coordinating curriculum development.** Prominp canvasses big companies in each field to identify specific skill requirements down to the level of specific activities. Then it identifies a provider with a strong track record for each field to work with selected companies in developing a curriculum.
- **Overseeing training.** Prominp ensures that providers are offering appropriate programs according to talent demands by region. It also sponsors about 30,000 students a year to go through the programs. As a result, Prominp qualified 90,000 people by the end of 2012, in 185 different professional categories, from the basic level to graduate level, involving around 80 educational institutions.

Prominp has what most systems don't: an overarching, long-term perspective of the industry's labor needs by region and skill. It then coordinates the creation of the right supply to meet this demand.¹²

Integrator for the entire system: Australian Workforce and Productivity Agency:

The Australian Workforce and Productivity Agency (AWPA) was established in July 2012 to drive greater collaboration among industry, providers, and government on all workforce-development issues. While technically the newest system integrator profiled in this section, AWPA replaced and expanded upon Skills Australia, set up in 2008 to provide independent advice to the government on workforce planning and industry skill requirements.

Skills Australia was widely respected and did important research on skills and training. But the government had been hearing from different stakeholders that they needed better collaboration mechanisms and tighter linkages

between skill funding and industry needs. AWPA, then, embraced not only Skills Australia's responsibilities but also took on new roles in funding and coordination. AWPA focuses on several key functions:

- It administers a new National Workforce Development Fund to deliver training for high-priority industries and occupations.
- It develops and monitors workforce-development plans in conjunction with the 11 Industry Skills Councils. There was previously no entity formally responsible for playing this role.
- It conducts research on current and emerging skill requirements across all sectors.
- It provides independent advice to government and other entities—for example, AWPA is in the process of developing a national workforce-development strategy due by the end of 2012.

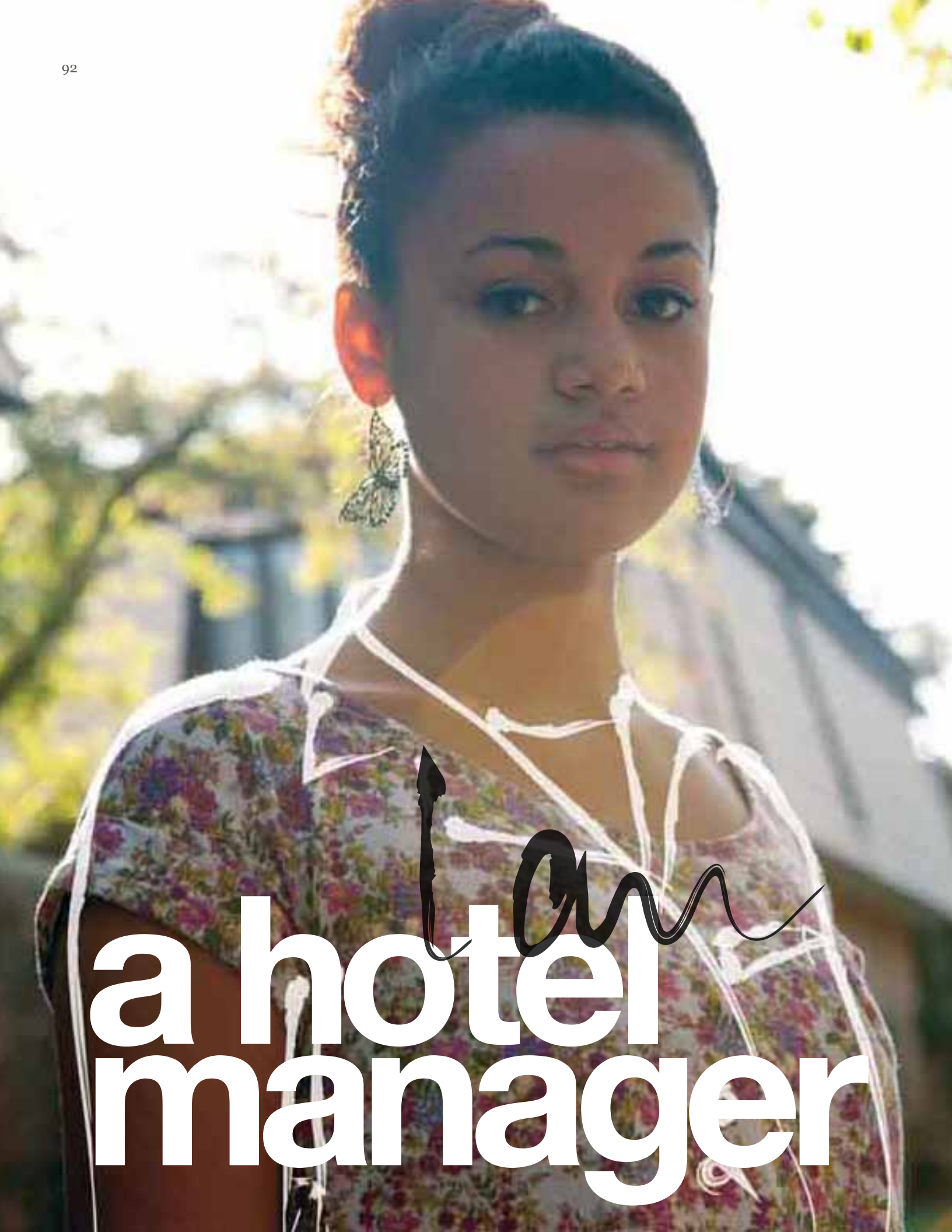
AWPA's expanded mandate is designed to give it better oversight of the entire education-to-employment system. Because it is so new, however, it is too soon to say how it is doing.¹³

These four examples highlight the different forms that system integrators may take. It may not be necessary to have a single national system integrator; multiple integrators can also work, as long as the entity for the microsystems (Prominp, NSDC, FEA) connects with its counterparts in the broader system.

3.2 Scaling up success

As discussed in Chapter 1, education-to-employment programs must expand from serving hundreds or thousands to hundreds of thousands and millions of youth. Given that affordability is a major barrier to entry for youth, such scaling must also occur in a cost-effective manner. Our conversations with providers and employers suggest that there are three primary barriers to increasing scale and maintaining affordability; a system can face any or all of these:

- constraints on provider resources, such as money or the lack of qualified faculty



I am
**a hotel
manager**

- difficulty in providing sufficient hands-on learning opportunities
- hesitation among employers about investing in training unless it is for specialized skills

3.2.1. Constraints on education-provider resources

Providers sometimes struggle to scale up operations due to internal resource constraints. The availability of teaching talent may be low or variable, for instance, or the cost of physical expansion at existing or new locations may be high. This situation is compounded when the provider operates in an environment where affordability is a major concern for students.

Overcoming these barriers requires a solution that is not only low cost but that also ensures a consistent level of quality. Technology is beginning to provide some answers. Education providers are innovating through the use of a highly standardized curriculum that is disseminated using nontraditional delivery channels, such as the Internet, television, and radio.

India's IL&FS Skills has managed to distribute standardized content at a low cost and in rural areas where broadband connections are not the norm. Videotaped skill-based modules are used extensively in the classroom to provide students with step-by-step instructions on how to complete specific tasks—how to install a CPU in the motherboard of a computer, say, or how to sew a specific stitch. While there is a human trainer present in every classroom to answer questions and monitor practical work, the lesson content is delivered entirely through these video modules. In this manner, IL&FS can make sure that every one of its 100,000 trainees in 2012 at every one of its 350 plus locations spread across India learned the same content, regardless of the aptitude of the trainers and without sophisticated technological infrastructure.¹⁴

The massive open online course (MOOC) movement that is sweeping the higher-education

landscape is a more radical example of how content can be disseminated widely. Udacity is a private, for-profit US startup that offers free, online computer-science courses taught by leading faculty (typically from top tier institutions). Lectures are delivered via short videos (each lasting about five minutes), with quizzes following each video to test absorption of content. Within a few weeks of opening its first class, “Introduction to Artificial Intelligence,” 160,000 students from 190 countries had signed up. Disseminating these classes online allows Udacity and other MOOCs such as Coursera and EdX to deliver the same content to hundreds of thousands of students from almost every country in the world at a minimal cost.

IL&FS Skills and Udacity offer two ways of getting around a shortage of teaching talent. In the case of IL&FS Skills, the use of prerecorded content ensures consistent quality. For Udacity, the need for only one lecturer means that the provider can afford to hire the best. In both cases, the marginal cost per additional user is relatively low since the primary cost lies in the up-front development of the content and technological platform. (The up-front cost can, however, be quite steep.)

This model offers another advantage: speed. Due to the standardized content and relatively low cost, expansion is relatively quick and easy, and in some cases it transcends geographical boundaries. It only took a few weeks for Udacity to get 160,000 students enrolled in 190 countries—a reach unimaginable in most operating models. It is important to note that such solutions are most useful in contexts where employers require a predominantly standard set of skills.¹⁵

3.2.2 Difficulty in securing sufficient hands-on learning opportunities

Successful programs that provide intensive practical or workplace-based training, such as high-quality apprenticeships, have found that this particular dimension can be difficult to scale up. This is due to the cost of building multiple physical

simulation sites or the difficulty in securing sufficient placements from local employers.

One way forward could be through greater use of “serious games,” also known as immersive learning simulations, game-based learning, or gaming simulations. As mentioned in Chapter 2, serious games enable users to apply their knowledge and skills in complex, real-world scenarios. Depending on the design of the game, they create opportunities for interactivity, for example, through multi-user gameplay, and for personalization, as the game responds to actions by the user and even learns from them, making subsequent rounds tougher. Advancements in technology also mean that today’s games can integrate real-time data, creating the potential to use such games not just as a training tool but also as a means to solve real-world problems or even to optimize costly processes. Examples include Fold-It, a Defense Advanced Research Projects Agency-funded project out of the University of Washington.

The serious-games industry is still nascent, although it has been growing rapidly worldwide; sales reached €1.5 billion in 2010 and are projected to increase by almost seven times by 2015.¹⁶ Market intelligence from Apply Group suggests that up to 135 of global Fortune 500 companies will have adopted games for learning purposes by the end of 2012.¹⁷

As with the industry itself, research on serious games is relatively new. One of the more recent meta studies (from the University of Colorado Denver Business School in 2010) found that, on average, workers trained using serious games (as opposed to formal classroom or Web-based tutorials) retained 9 percent more information, had 11 percent higher factual-knowledge levels, and 14 percent higher skill-based-knowledge levels. The study also found a fair amount of variance in impact depending on the design of the game and how it was used. Games that enable trainees to access the games as many times as they desire and that actively teach content (versus just

testing for content learned elsewhere) tend to yield better results. A study of a game on electrostatics (Supercharged!), for example, found that students who were taught primarily using the game showed an understanding of the concepts that was two to five times better after the lesson than for students who were taught primarily via interactive lectures and classroom demonstrations.¹⁸

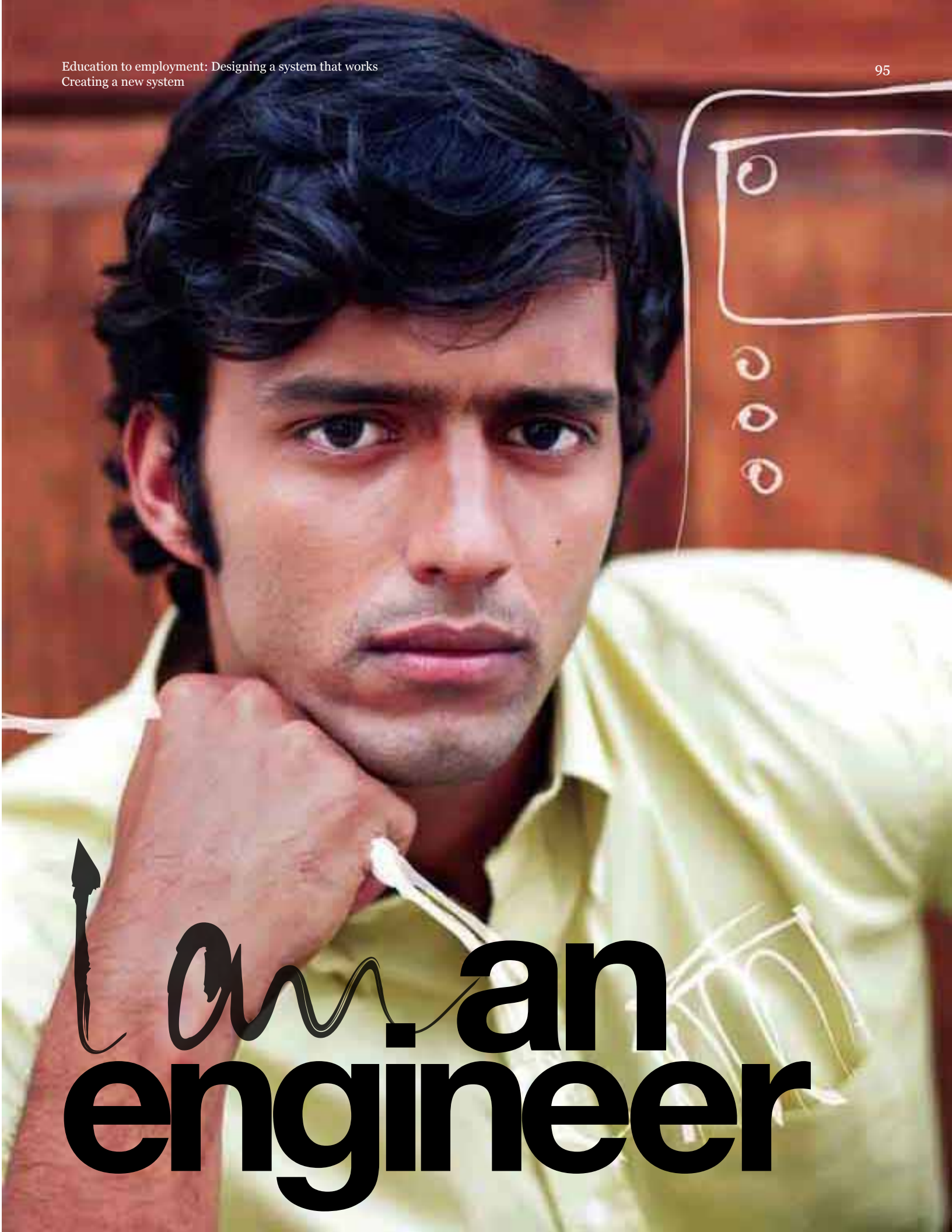
Critically, development costs, once a major barrier, are coming down. Many examples of sophisticated serious games for military use had development costs in the millions. However, costs have been falling, due to the availability of new tools such as authoring platforms, templates, and graphics libraries. Industry players suggest that good skills training games can be developed at a cost of \$50,000 to \$500,000, depending on the complexity of the design and the extent of customization.^{19,20}

Virtual simulations could scale up relatively quickly and inexpensively, as long as the need for scale, such as a platform to support hundreds, if not thousands of users simultaneously, is built into the design from the start. (Any changes to the design parameters, for example, changing game genre from First Person Shooter to Real-time Strategy after the framework has been built would also drive up costs). If these conditions are met, however, then the return on investment could be significant. “There is an up-front investment to develop and launch the game,” an IBM senior manager notes, “but once we have that in place, we can train thousands of people to a consistent quality level and with a speed that we never could before.”²¹

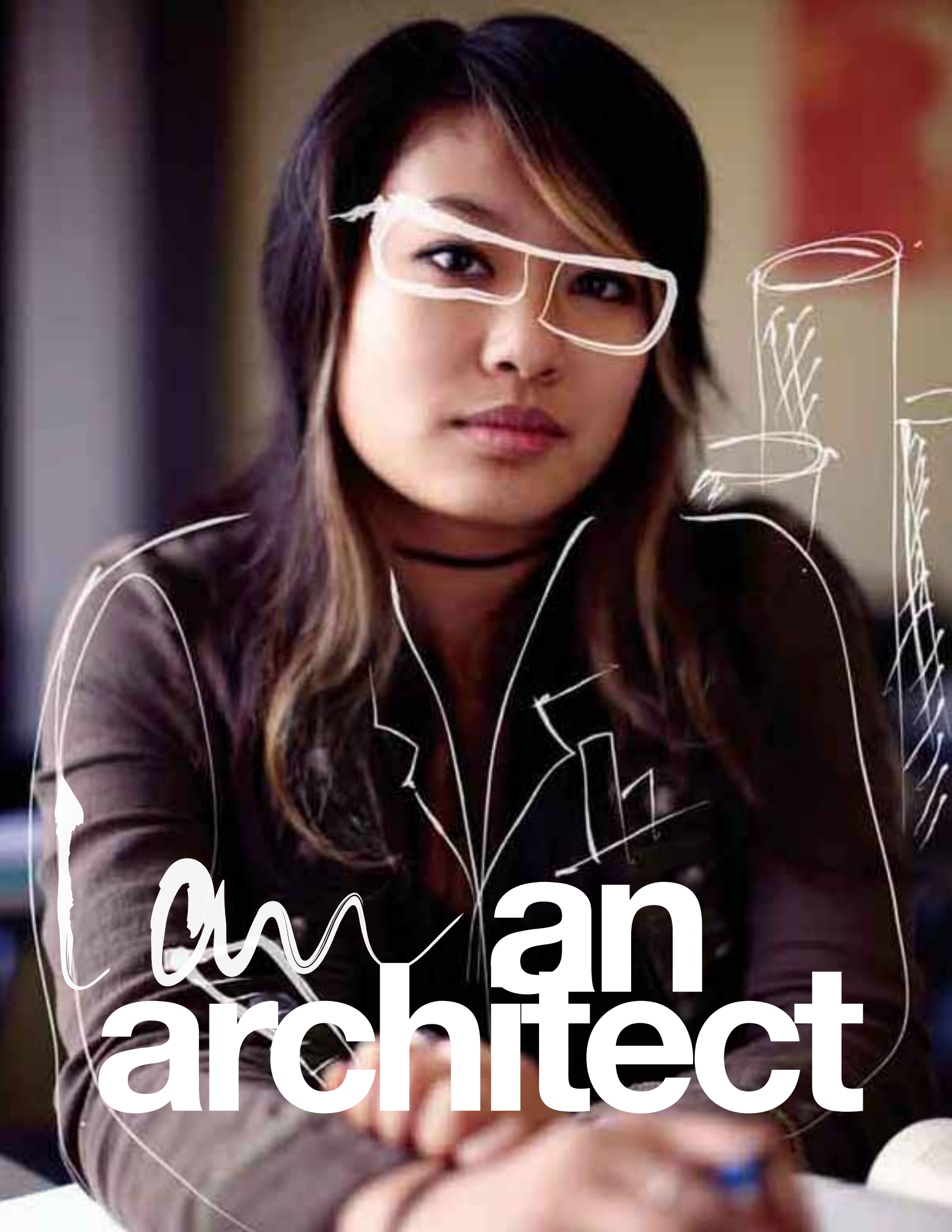
As prices drop, serious games could offer providers a way to scale up the tough-to-provide, down-to-earth training that students want. The future of hands-on learning may be hands-off.

3.2.3 Hesitation among employers about investing in training

The third major barrier is that employers tend to be willing to invest only in those specialized skills



I am an
engineer



Can an
architect

whose value they can fully capture. They worry, understandably, about investing in training only to see their improved employee take his or her skills elsewhere. Employers therefore prefer the idea of training youth on specific equipment in their own facilities. For providers, the obvious reciprocal concern revolves around cost: it is expensive with regard to time, faculty resources, and funds to develop customized solutions that meet the needs of every employer.

One solution we have seen is for education providers to deliver a core curriculum that is standardized across all employers in a given industry; then, an elective or “top up” curriculum is tailored to the needs of the specific employer or local labor market.

TAFE, the government vocational education provider in Australia, is one such example. All TAFE institutions use a national curriculum known as a “training package” that is developed collaboratively with industry. In recognition of the breadth of skills and competencies that are required in any single industry, each curriculum is divided into core and elective modules. While every TAFE program must cover the core modules set out in the training package, each institute has flexibility over which electives to offer. At TAFE Sydney Institute, for example, the faculty of the hospitality division worked with the largest five-star hoteliers in the city to map the competencies that were part of the core curriculum against the needs of the hotels. The faculty then selected its set of elective modules based on where there were outstanding gaps in training requirements. This ensured that the institute was training local students in the skills deemed most important by area hotels. As a result, TAFE Sydney Institute increased the employment rate of its students at these top hotels, while enabling the hotels to reduce the amount of time spent on training.²²

Similarly, AMTEC allows providers to customize content to meet the needs of local auto manufacturers. AMTEC has created a curriculum composed of about 60 modules covering 110

common competencies required across the different employers. Employers can choose to have their employees undertake training from providers in all 110 competencies or focus on a specific set of modules. Some employers also deliver top-up training themselves for additional competencies they feel are unique to their circumstances.²³

This use of a common core, combined with tailored electives, enables providers to offer customized solutions that do not break the bank. This approach does, however, depend on having a set of common skills to teach.

As a whole, today’s education-to-employment systems lack the frequency and scale required to support youth effectively. We cannot afford tomorrow’s approach to be more of the same. Einstein reportedly defined insanity as “doing the same thing over and over again and expecting different results.” It would be crazy to keep doing what we do, knowing what we know about costs, failures, and limitations. We need a new system, not patches on the current one.

This report has sought to improve the quality of knowledge on moving young people from education to employment and to examine why high levels of youth unemployment coexist with significant skill shortages. We know we have left many questions unanswered, but we hope our work will stimulate others to continue the investigation of this crucial topic.

We also hope that this report will help to rouse stakeholders to take collective action to address the challenges we have identified. Today’s youth—and tomorrow’s—deserve better.

Endnotes

Introduction

- 1 “NEET rates among youth in OECD countries: Percentage of population aged 15–24, 2007 Q1–2011 Q1,” OECD Employment Outlook 2012, Organisation for Economic Co-operation and Development (OECD), 2012.
- 2 Jenny Marlar, “Global unemployment at 8% in 2011,” Gallup, April 2012.
- 3 OECD, *Divided We Stand: Why Inequality Keeps Rising*, 2011.
- 4 OECD, Messages from PISA 2000, 2004.
- 9 Within our surveyed countries where data are available, the postsecondary gross enrollment rate ranges from a low of 35 percent in Mexico to a high of 90 percent in the United Kingdom. (See OECD, *Education at a Glance 2012*.)
- 10 “Economic news release,” US Bureau of Labor Statistics, February 2012.

Chapter 1

- 1 Where data scales from 0 to 10 are used, a score of 8 or higher is considered significant or “agree.” Where agree-disagree scales are used, “agree” includes strongly agree and agree, “neutral” includes somewhat agree and somewhat disagree, and “disagree” includes disagree and strongly disagree.
- 2 NEETs—Young People Not in Employment, Education, or Training: Characteristics, Costs, and Policy Responses in Europe, European Foundation for the Improvement of Living and Working Conditions (Eurofound), 2012.
- 3 OECD, *OECD Employment Outlook 2012*.
- 4 Pedro Carneiro et al., “Estimating marginal returns to education,” *American Economic Review*, October 2012, Volume 101, Number 6, pp. 2754–81.
- 5 OECD, *Measuring Innovation*, 2010.
- 6 Aysit Tansel, *Changing Returns to Education for Men and Women in a Developing Country: Turkey, 1994–2005*, Middle East Technical University and Institute for the Study of Labor, March 2010.
- 7 OECD, *Education at a Glance 2012: “OECD Indicators,”* 2012.
- 8 Factors for institution selection include prestige of the institute, qualification/program type, proximity to home/family, friends going to the same institution, family opinions, cost of program, the ability to study my chosen field, the institution’s job-placement rates, schoolteacher/principal advice, the ability to work while studying, the duration of the offered program, the average wages of jobs in the disciplines offered at the institution, and the number of available jobs in the disciplines offered at the institution.
- 11 Gallup, 2012.
- 12 Hanan Morsy, “Scarred generation,” International Monetary Fund, Finance & Development, Volume 49, Number 1, March 2012.
- 13 Hiring factors include field of study, degree type (vocational/skills, bachelor’s), candidate’s previous work experience/on-the-job training/competency-based certificates (quantity and/or depth), prestige/reputation of education institution, candidate’s academic standing, candidate’s recommendations or references, and candidate’s in-person presentation.
- 14 Gallup, 2012.

Chapter 2

- 1 We have identified cases based on recommendations and referrals from researchers and donor agencies in the field as well as industry leaders. We then assessed these cases to determine the degree of innovation (for example, creative and intensive collaboration across multiple parties) and outcomes (for example, attracting larger numbers of youth, ensuring higher employment rates, and so on) and have tried to showcase examples that span multiple geographies and industry sectors. We have visited and interviewed most of the cases cited in Chapters 2 and 3 and have verified their impact using both internal and external sources.
- 2 National Careers Service (nationalcareersservice.direct.gov.uk).
- 3 National Careers Service Media Toolkit, September 2012.
- 4 Colombia Labor Observatory, Ministry of Education, interview with manager, Bogotá, Colombia, October 2012.
- 5 Canton Bern, (gef.be.ch).

- 6 Pratham Institute for Literacy Education and Vocational Training, interview with executive committee member, November 2012.
- 7 Siemens, interviews with facilities training manager, key account manager, and facilities human-resources manager, September 2012.
- 8 Ministry of Education, Science and Technology, interview with officials, Seoul, Korea, October 2012.
- 9 Center for Education Statistics, *Korean Statistical Yearbook of Education*, 2012.
- 10 *Skills Funding Agency Annual Report and Accounts 2011–12* (skillsfundingagency.bis.gov.uk).
- 11 Australia Workforce Productivity Agency, *Skills Australia Annual Report 2011/2012* (awpa.gov.au).
- 12 Siemens, interviews with facilities training manager, key account manager, and facilities human-resources manager, September 2012.
- 13 Americana, interview with human-resources manager, November 2012.
- 14 The Apprentice School, interview with head of prehiring, Newport News, VA, June 2012.
- 15 Year Up, interview with national director for strategic growth and impact, November 2012.
- 16 Year Up, “Fast facts,” 2012 (yearup.org).
- 17 Year Up (yearup.org).
- 18 Miami Dade College, interview with officials, Miami, FL, July 2012.
- 19 Graduation rate is measured for all “full-time, first-time degree/certificate-seeking undergraduate students.”
- 20 The Automotive Manufacturing Training and Education Collective, “AMTEC Curriculum, Certification, and Assessments,” 2011.
- 21 AMTEC, interview with executive director, November 2012.
- 22 Nissan, interview with maintenance manager, November 2012.
- 23 Kaye Bowman, David Crean, John Mills, and Danielle Ranshaw, *Workforce Skills Development and Engagement in Training Through Skill Sets: Literature Review*, National Centre for Vocational Research, May 2012.
- 24 South Korea Small & Medium Business Administration Statistics Database, 2010.
- 25 SK Telecom, interview with manager, October 2012.
- 26 Celine Kaufmann, *Financing SMEs in Africa*. OECD Development Centre, 2005 (oecd.org).
- 27 AMICA (The Moroccan Professional Association for the Automotive Industry and Trade), interview with president, Casablanca, Morocco, July 2012.
- 28 Nettur Technical Training Foundation, interview with managing director, India, July, 2012.
- 29 TAFE, interview with director, international engagement and business development, TAFE Directors Australia and manager, international marketing, TAFE NSW, Sydney, Australia, September 2012.
- 30 IBM, interview with worldwide learning innovation practice leader, October 2012.
- 31 Wipro, interview with head of new-employee-readiness program, July 2012.
- 32 The Apprentice School, interview with head of prehiring, Newport News, VA, June 2012.
- 33 ACT, National Career Readiness Assessment (act.org).
- 34 Mozilla Open Badges (openbadges.org).
- 35 IL&FS Skills, interview with chief operating officer, Delhi, India, July 2012.
- 36 Siemens, interview with facilities training manager, November 2012.
- 37 KOSEN, interview with Tokyo KOSEN president et al., Tokyo, Japan, October 2012.
- 38 Siemens, interview with head of talent acquisition and head of Orion channel for Siemens US, September 2012.
- 39 “Saudi wins ‘Global Entrepreneurship’ award from Queen Rania of Jordan,” October 2012, AMEinfo.com.
- 40 China Vocational Training Holding, interview with director of teaching and research, November 2012.
- 41 Go for Gold, interview with program director, November 2012.

Chapter 3

- 1 The World Bank (in its Skills Toward Employment and Productivity Measurement Study) and OECD (in its Programme for the International Assessment of Adult Competencies) are currently undertaking surveys to test the literacy and technical skills of adult populations in a range of countries. Once published, these data will provide a helpful snapshot of current workforce skills in participating countries.
- 3 Economic Modeling Specialists International Career Coach, economicmodeling.com.
- 3 Colombia Ministry of Education, interview with officials, Bogota, Colombia, October 2012.
- 4 Korea Research Institute for Vocational Education and Training, eng.krivet.re.kr.
- 5 Singapore Ministry of Education, moe.gov.sg.
- 6 AMTEC, interview with executive director, November 2012.
- 7 National Council on Skill Development, India, skilldevelopment.gov.in.
- 8 Frank-Jürgen Weise, "Behind the German jobs miracle," *Government Designed for New Times*, McKinsey & Company, 2012.
- 9 Ibid.
- 10 National Skill Development Corporation (NSDC), *NSDC Annual Update*, 2012, nsdcindia.org.
- 11 Based on McKinsey expert interviews.
- 12 Prominp, interview with manager, Rio de Janeiro, Brazil, October 2012.
- 13 Australian Workforce and Productivity Agency, awpa.gov.au.
- 14 IL&FS Skills, interview with chief operating officer, Delhi, India, July 2012.
- 14 Udacity, udacity.com.
- 16 "IDATE: Serious games—A 10 billion euro market in 2015," July 2010, seriousgamesmarket.blogspot.com.
- 17 Entertainment Software Association, "Games: Improving education," theesa.com.
- 18 K. Squire et al., "Electromagnetism Supercharged! Learning physics with digital simulation games," 2004, hci.iastate.edu.
- 19 IBM, interview with worldwide learning innovation practice leader, October 2012.
- 20 Mayo, Merrilea, "Bringing Game-based Learning to Scale: the Business Challenges of Serious Games," 2010, nationalacademies.org
- 21 IBM, interviews with worldwide learning innovation practice leader and serious-games program manager, October and November 2012
- 22 TAFE, interview with director, international engagement and business development, TAFE Directors Australia and manager, international marketing, TAFE NSW, Sydney, Australia, September 2012.
- 23 AMTEC, interview with executive director, November 2012.



a diver

Bibliography

- Allen, I. Elaine et. al., *Going the Distance: Online Education in the United States*, Babson Survey Research Group, 2011.
- American Association of Community Colleges, *Reclaiming the American Dream: Community Colleges and the Nation's Future*, 2012.
- American Institute of CPAs, aicpa.org.
- Australia India Education Links, "Policy Overview of Vocational Education and Training in India," 2011.
- Bureau of Labor Statistics, United States Department of Labor, bls.gov.
- Cappelli, Peter, *Why Good People Can't Get Jobs: The Skills Gap and What Companies Can Do About It*, 2012.
- Carnavale, Anthony et. al., *Hard Times*, Georgetown University, Center on Education and the Workforce, 2012.
- Chao, Elaine et al., "Does a Skills Gap Contribute to Unemployment?" *New York Times*, July 9, 2012.
- International Labor Organization, *Global Employment Trends for Youth*, 2012.
- International Labor Organization, *Global Employment Trends*, 2011.
- International Network of Sector Skills Organisations, *Think Global Act Sectoral*, edited by Phillipa Abbott and Tom Bewick, 2010.
- Institute for the Future, iftf.org.
- Institute of Play, instituteofplay.org.
- Institute of Technical Education, "A world-class vocational technical education system in time for the future: The Singapore experience," presentation for the World Bank and African Education Policy Makers, Singapore, June 2006.
- Institute of Technical Education, "Leading change: Branding and marketing of TVET," presentation for World Bank Leaders in Education and Training for Sustained Growth in Africa, Singapore, January 2008.
- Itasca Project, *Higher Education Partnerships for Prosperity*, 2012.
- Klein-Collins, Rebecca, *Competency-Based Degree Programs in the US: Postsecondary Credentials for Measurable Student Learning and Performance*, Council for Adult and Experiential Learning, 2012.
- Lichtenberger, Eric, "Reverse transfer students and postsecondary outcomes: A potential opportunity," Illinois Education Research Council, 2011.
- MacArthur Foundation, "Digital media and learning competition provides \$2 million for innovations in digital badges," September 2011.
- Manpower Group, "Talent shortage study," 2012.
- McKinsey Global Institute, *The World at Work: Jobs, Pay, and Skills for 3.5 Billion People*, July 2012.
- Miller, Ben, *The Course of Innovation: Using Technology to Transform Education*, Education Sector Reports, 2010.
- Mills, John et al., *Workforce Skills Development and Engagement in Training through Skill Sets*, National Vocational Education and Training Research and Evaluation Program Australia, monographseries paper and literature review, 2012.
- MTV, *Underemployed*, created by Craig Wright, 2012.
- National Academy of Sciences, *Learning Science through Computer Games and Simulations*, 2011.

- National Governors Association Center for Best Practices, *A Sharper Focus on Technical Skills: How to Educate and Train for the Global Economy*, 2010.
- National Skill Development Corporation, India, nsdcindia.org.
- National Skills Coalition, *Driving Innovation from the Middle: Middle-skill Jobs in the American South's Economy*, 2011.
- OECD and International Labour Office, India: *The National Policy on Skill Development*, G20 Country Policy Briefs Series, 2012.
- OECD, *Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies*, 2012.
- OECD, *Divided We Stand: Why Income Inequality Keeps Rising*, 2011.
- OECD, *PISA 2009 at a Glance*, 2011.
- OECD, *Programme for the International Assessment of Adult Competencies (PIACC)*, 2012.
- OECD, *Skills Strategy*, 2012.
- Pappano, Laura, "The year of the MOOC," *New York Times*, November 2, 2012.
- Payne, Jonathan, *Sector Skills Councils and Employer Engagement: Delivering the 'Employer-led' Skills Agenda in England*, ESRC Centre on Skills, Knowledge, and Organisational Performance research paper, Number 78, December 2007.
- Smalley, David J. et al., "A longitudinal study of the Illinois high school class of 2002: A six-year analysis of postsecondary enrollment and completion," *Illinois Education Research Council*, 2010.
- Spielhofer, Thomas et al., *Increasing Participation: Understanding Young People Who Do Not Participate in Education*, National Foundation for Educational Research, 2009.
- Tan, Jee-Peng et al., *Workforce Development in Developing Countries: A Framework for Benchmarking*, World Bank Initiatives on System Assessment and Benchmarking of Education Results, Human Development Network, World Bank, 2012.
- The Aspen Institute, *2011 Aspen Prize for Community College Excellence*, 2011.
- "The Big Three, At a Glance," *New York Times*, November 2, 2012.
- The Economist, *The Future of Jobs: The Great Mismatch*, September 2011.
- UNESCO, *Youth and Skills: Putting Education to Work*, 2012.
- World Bank, *Stepping up Skills for More Jobs and Higher Productivity*, 2010.
- World Bank, *The Right Skills for the Job? Rethinking Training Policies for Workers*, edited by Rita Almeida et al., 2012.
- World Bank, *Toward a Better Future: Education and Training for Economic Development in Singapore Since 1965*, edited by Sing-Kong Lee et al.

Appendices

A. Country youth unemployment rates

Five of the countries in our survey are part of the OECD, which regularly reports on youth unemployment (Exhibit 1). Additional youth-unemployment data for non-OECD countries were gathered through a broader search. The data indicate that due to the financial crisis and the related economic slowdown, youth unemployment rose in 2009 in most countries. The rate has generally stayed higher than pre-2009 figures in all countries except Germany.

B. Survey methodology

The survey consisted of three parallel questionnaires to youth, education providers, and employers, administered from August to September 2012 in nine countries: Brazil, Germany, India, Mexico, Morocco, Saudi Arabia, Turkey, the United Kingdom, and the United States. The survey was conducted to build an empirical fact base across stakeholders in the education-to-employment space. The nine countries were chosen to provide a diverse set of geographies, labor markets, and educational contexts. They represent nearly 40 percent of global GDP (IMF 2011) and 30 percent of the world's population.

The target sample size for each country was 500 youth, 300 employers, and 100 providers (totaling 4,500 youth, 2,700 employers, and 900 providers across the nine countries). While McKinsey designed the three questionnaires, we commissioned Lieberman Research Worldwide to recruit participants and administer the survey in all nine countries.

In questions regarding agreement with a given statement, participants were asked to choose one of six options, which were classified for the report as follows: agree (“strongly agree” or “agree”); neutral (“somewhat agree” or “somewhat disagree”); and disagree (“disagree” or “strongly disagree”). In questions where respondents were asked to rate an ability or characteristics, such as competence or importance, 11-point scales were given to participants, where 0 indicated “not at all” and 10 represented “extremely”; scores of 8 or higher were interpreted as belief or agreement.

Youth survey

At least 500 youth were surveyed in each country, resulting in 4,656 youth in total, including oversampling (Exhibit 2). Eligible youth participants for the survey were defined as young people aged 15 to 29 who were either (a) in the labor force or (b) currently studying and would be looking for work in six months. Youth were recruited both in public settings and online.

Youth were distributed across five education levels in relatively equal proportions: less than high school, high school, vocational, some college or associates degrees, and college/university degrees. Self-reported income was also assessed, with the majority of youth (62 percent) assessing themselves at “about the national average” and only 12 percent indicating they were above it.

The sample was then weighted for each country toward the gender and age distribution for the economically active population of 15-to-29-year-olds in each country, according to the latest statistics from the International Labour Organization (Exhibit 3). The weight of any one response was capped at a minimum of 0.3 and maximum of 3.0.

Exhibit 1

Context: youth unemployment rates

Youth unemployment rates¹

	2004	2005	2006	2007	2008	2009	2010	2011
Brazil	18.1			16.8	15.5	17.8		
Germany	12.6	15.2	13.6	11.7	10.4	11.0	9.7	8.5
India		10.5						
Mexico	7.6	6.6	6.2	6.7	7.0	10.0	9.4	9.8
Morocco					28.2			
OECD average	13.7	13.4	12.6	12.0	12.7	16.7	16.7	16.2
Saudi Arabia	15.4	15.7	16.6	17.2	18.3	21.9		
Turkey	20.6	19.9	19.1	20.0	20.5	25.3	21.7	18.4
United Kingdom	10.9	12.2	13.8	14.2	14.1	19.0	19.3	20.0
United States	11.8	11.3	10.5	10.5	12.8	17.6	18.4	17.3

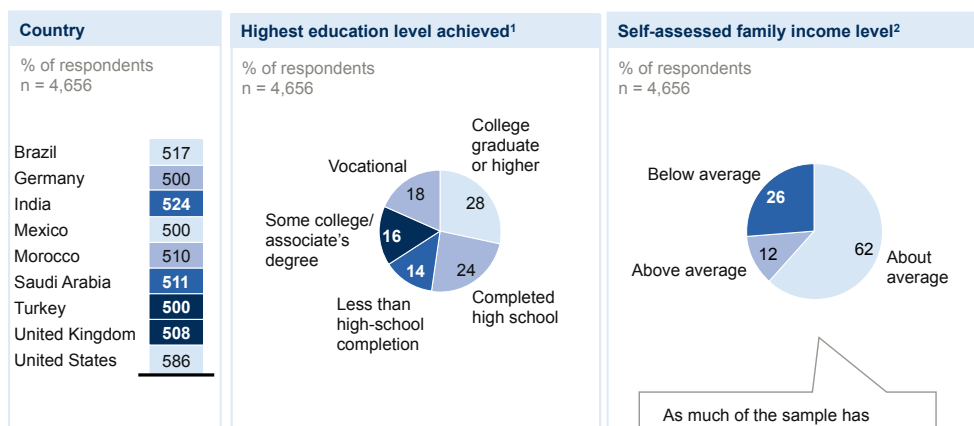
¹ Brazil, India, Morocco, and Saudi Arabia are not part of the OECD, and so there is not a single data source for them as there is for the other countries.

Source: OECD; Web search

1

Exhibit 2

Youth survey sample (1/2)



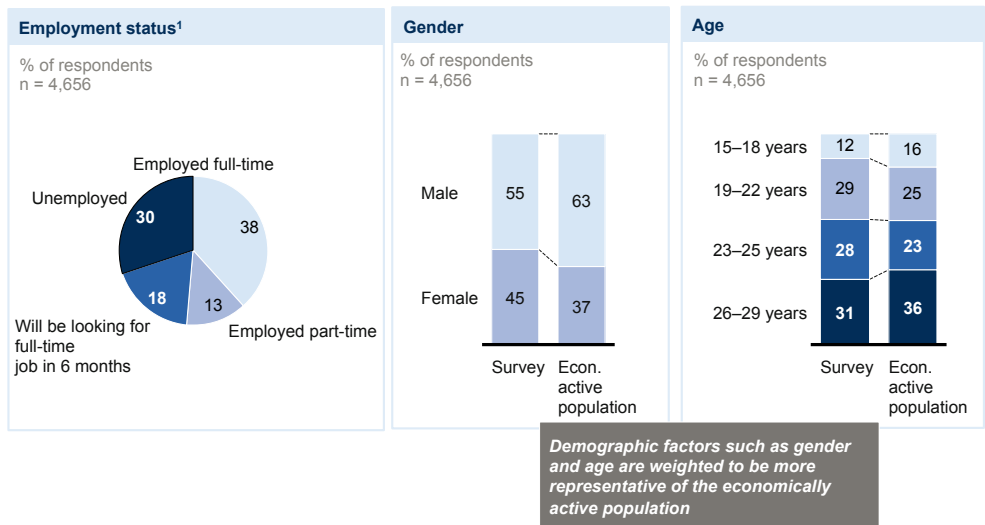
¹ What is the highest level of education you have completed?

² Roughly where do you think your family's annual income falls relative to the national average?

Source: McKinsey survey, Aug–Sept 2012

Exhibit 3

Youth survey sample (2/2)

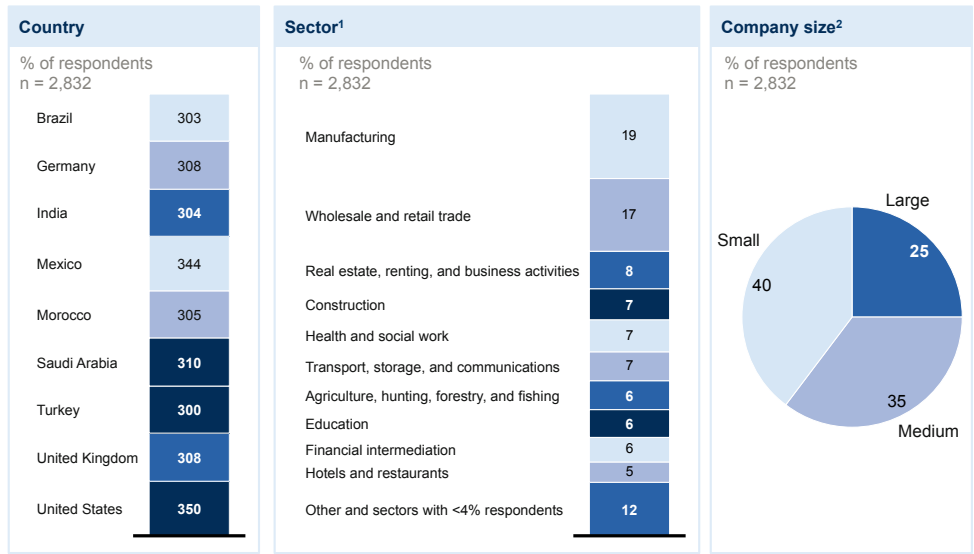


1 Which of the following best describes your employment status? (Figures may not sum, because of rounding).

Source: International Labour Organization; McKinsey survey, Aug–Sept 2012

Exhibit 4

Employer survey sample



1 Includes mining/quarrying, electricity/gas/water, private households, and public administration.

2 How many employees are currently working in the company? Small defined as (<50 employees), medium (50–499), and large (≥500).

Source: McKinsey survey, Aug–Sept 2012

Employer survey

At least 300 employers were surveyed in each country, resulting in 2,832 employers in total, including oversampling (Exhibit 4). These employers were relatively evenly distributed across sectors, with the largest concentrations occurring in manufacturing (19 percent) and wholesale and retail trade (17 percent). Company size was grouped according to number of employees as small (fewer than 50), medium (50 to 499), and large (500 or more). According to this classification, three out of four employer respondents were small or medium enterprises.

Employers interviewed for the survey were required to be responsible for at least one of three areas within the following: (1) defining hiring criteria, including necessary skills and qualifications, (2) implementing an employee-training agenda and process, or (3) analyzing skills gaps within the company or business.

Provider survey

At least 100 providers of postsecondary education were surveyed in each country, resulting in 908 providers in total, including oversampling (Exhibit 5). Three types of providers—open-access public institutions, selective public institutions, and for-profit private institutions—each accounted for slightly less than a third of the providers sample, with the balance (11 percent) composed of not-for-profit private institutions. Nearly half of the providers sampled had fewer than 1,000 students and a quarter had more than 5,000 students. Furthermore, providers that focused on academic tracks made up just over half of the sample; the rest were providers focused on vocational tracks.

Eligible provider respondents were defined as employees of post-high-school educational institutions whose current role was related to admissions, career and academic counseling, or academics (for instance, curriculum development or accreditation). More specifically, respondents had to have primary responsibility or significant influence or input in one of the following three areas: (1) admissions and enrollment criteria, (2) quality-assurance and institutional-governance processes (that is, accreditation, certification, and/or adherence to government standards), or (3) employer and recruiter relations (that is, communications related to the development/adjustment of curriculum and career paths to meet in-country employer/recruiter needs).

C. Segmentation

Segmentation is the practice of breaking down a population into meaningful groups, often to profile heterogeneous customer bases. With regard to our survey, we thought it would be meaningful to apply segmentation to the stakeholders, given that the sample consisted of participants from diverse countries and backgrounds. For this reason, we conducted a segmentation analysis on the employer and youth samples (the number of provider responses was too small to reliably allow for a comprehensive segmentation).

For the purposes of this survey, we opted to segment employers and youth by attitudes and outcomes. The objective was to determine whether we would detect patterns in attitudes and beliefs beyond demographics that cut across nationality, age, and gender. Additional details of the employer segmentation can be found on Exhibits 6 through 8. For the youth segmentation, two segmentations were performed: one for postsecondary youth, and the other for secondary-only youth. Additional details on the youth segmentation can be found on Exhibits 9 and 10.

Exhibit 5

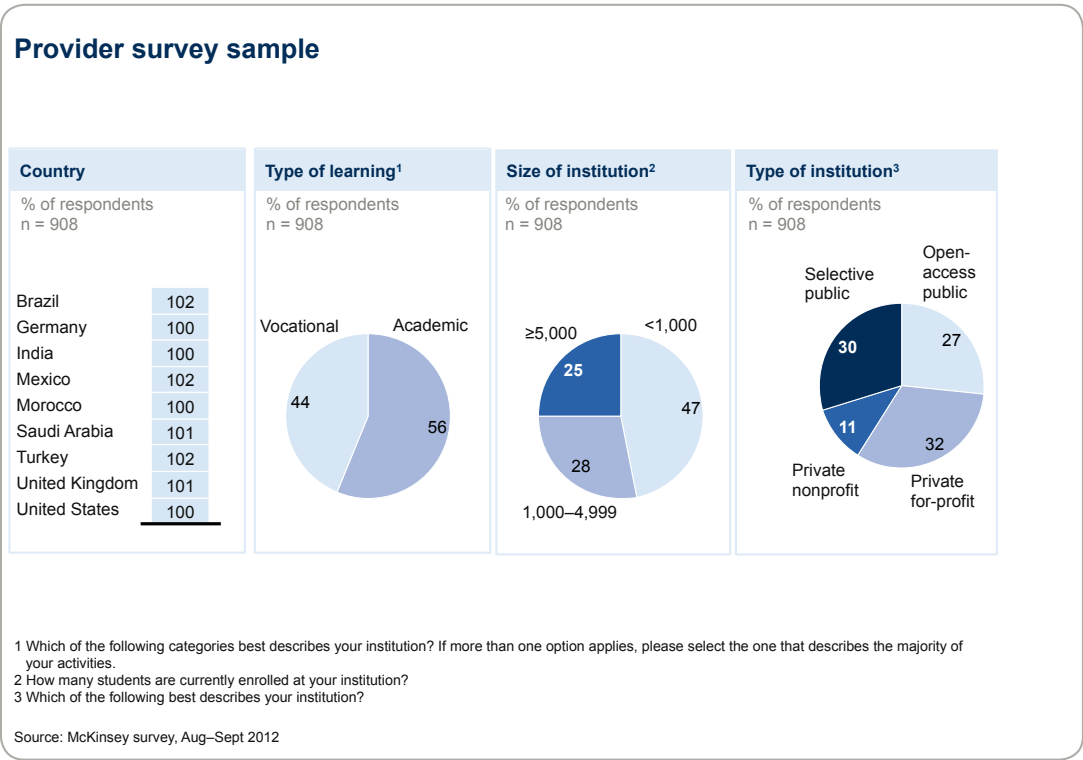


Exhibit 6

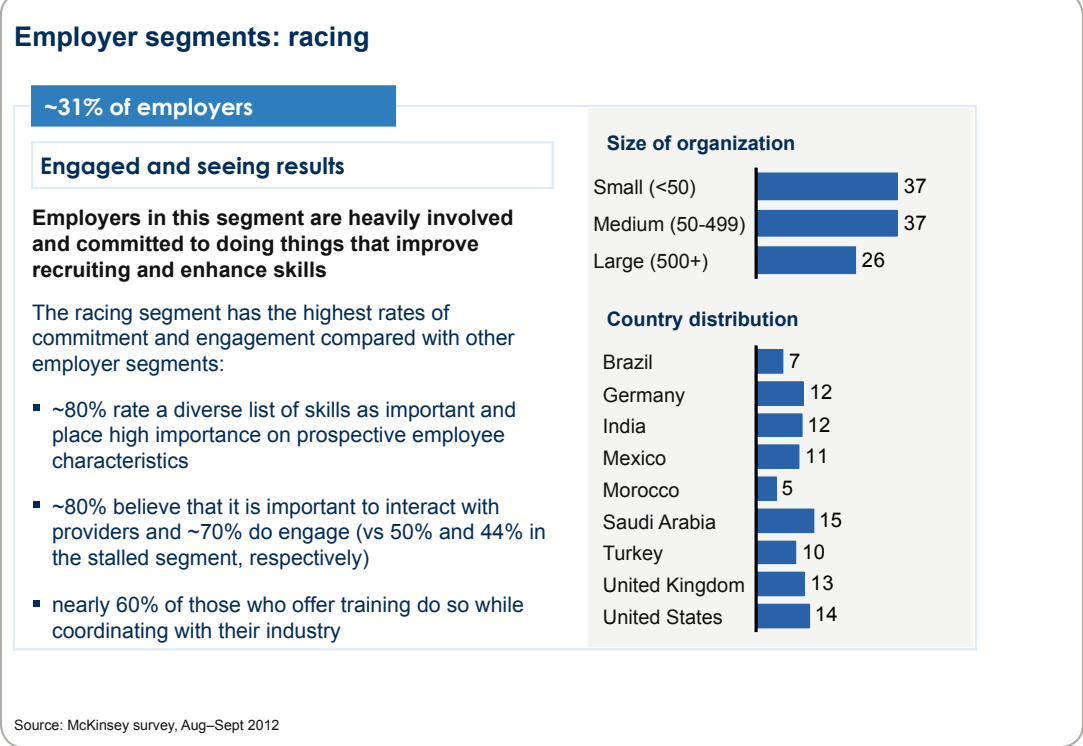


Exhibit 7

Employer segments: neutral gear

~25% of employers

Engaged but not moving the bar

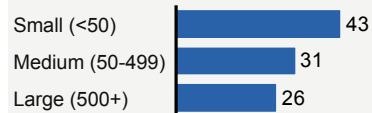
Employers in this segment are doing the right things but not necessarily with the right intensity; they therefore are not seeing the desired outcomes

More employers in this segment are involved than those in the stalled segment

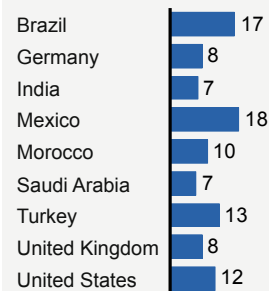
Still, the rates of engagement in good practices (for example, training, communicating with providers) are not as high as in the racing segment

Even when employers in neutral gear do these things, they see poorer results than those in the racing segment—for example, fewer rate communications with providers as effective

Size of organization



Country distribution



Source: McKinsey survey, Aug–Sept 2012

Exhibit 8

Employer segments: stalled

~44% of employers

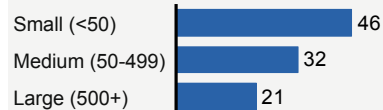
Disengaged and uncommitted

Employers in this segment are inactive and do not place a high degree of importance on actions that improve recruiting and skill development

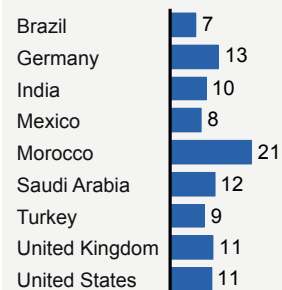
The stalled segment has the lowest rate of commitment and engagement compared with the other employer segments in all of the below:

- rating a diverse list of skills as important
- offering skilled candidates higher pay
- communicating with providers and coordinating with their industry
- offering in-house and external training

Size of organization



Country distribution



Source: McKinsey survey, Aug–Sept 2012

Exhibit 9

Overview of youth segments (1/2)

Segment	Who are they?	What matters to them?	How to engage them further
Well positioned 	▪ Wealthiest and oldest group ▪ Most likely to be in private for-profit institutions and in academic streams ▪ Overrepresented in Saudi Arabia; underrepresented in India and the United States	▪ <i>Where to study:</i> prestige of institution, program type, and ability to study chosen field ▪ <i>How to get hired:</i> gaining work experience and credentials ▪ <i>Other:</i> belief that socioeconomic background influences options	▪ Link education to employability and offer them more (they are willing to pay even more for even better outcomes) ▪ Let them show others the path
Driven 	▪ More likely to be female and current students ▪ Overrepresented in Brazil and Mexico; underrepresented in Morocco, Saudi Arabia, and Turkey	▪ <i>Where to study:</i> ability to work while studying, career paths, and future wages ▪ <i>How to get hired:</i> be the best student and get the right degree ▪ <i>Other:</i> least belief in socioeconomic determination; education will enable success	▪ Don't make them choose between studying and working ▪ Show them employability outcomes to justify value (they are willing to pay)
Struggling 	▪ Average distribution on age, gender, and country distribution ▪ Least likely to be at higher income levels	▪ <i>Where to study:</i> family, friends, and teacher advice; length of program; prestige of institution (among several others) ▪ <i>How to get hired:</i> rate nearly all factors high; highest on references ▪ <i>Other:</i> would make different educational-institution and field-of-study decisions if they could	▪ More guidance and information on career paths, postsecondary-placement opportunities, and wages ▪ Segment is low skill but high will

Source: McKinsey survey, Aug–Sept 2012

Exhibit 10

Overview of youth segments (2/2)

Segment	Who are they?	What matters to them?	How to engage them further
Disheartened 	▪ More likely to be younger ▪ Overrepresented in India and Turkey; underrepresented in Saudi Arabia ▪ Less likely to be employed in the education sector ▪ Drop out of postsecondary because of cost, lack of skill gain, and family preferences	▪ <i>Where to study:</i> prioritize being close to friends; low preference for program-specific factors ▪ <i>How to get hired:</i> deprioritize every career factor ▪ <i>Other:</i> believe economic situation affects outcomes; don't believe education prepared them and wouldn't pay for more	▪ Energize them about their future; help them see that focusing on education and career is not in vain ▪ Show them that people like them can succeed
Disengaged 	▪ More likely to be in vocational fields or receive associate's degrees and to not graduate on time ▪ Overrepresented in Morocco; underrepresented in Mexico and Saudi Arabia	▪ <i>Where to study:</i> deprioritize every education factor ▪ <i>How to get hired:</i> no clear priorities for career factors ▪ <i>Other:</i> low satisfaction with job; wish they could make a different education choice	▪ Informing these youth is important, but not enough ▪ Direct supervision and proactive guidance (such as 1-on-1 outreach, as well as assigned mentors and counselors)
Too cool 	▪ Drop out due to lack of interest ▪ Overrepresented in Mexico ▪ More likely to be younger than postsecondary groups ▪ More likely to be employed in the public sector	▪ <i>How to get hired:</i> work experience, references, and prestige of academic institution ▪ <i>Other:</i> do not want to pay for more education; think they are prepared for employment	▪ Offer them options: over a third of those employed are in interim positions where they didn't plan to stay
Too poor 	▪ Drop out due to lack of affordability (though self-reported income is equal to "too cool") ▪ Overrepresented in Brazil ▪ More likely to be younger than postsecondary groups	▪ <i>How to get hired:</i> low on every hiring factor ▪ <i>Other:</i> would like to pay for more education; unsure of preparedness for employment	▪ Don't make them choose between education and work: cost-reduction and financing options are needed

Source: McKinsey survey, Aug–Sept 2012

McKinsey Center for Government

The McKinsey Center for Government (MCG) is a dedicated center of expertise and innovation within McKinsey & Company's Public Sector Practice to support government leaders in their goal to achieve greater and lasting performance.

An increasingly complex environment requires government leaders at all levels to do more and better with fewer resources. Therefore MCG's mission is to help them understand the forces that are driving change, design the best strategies for success and develop the tools and capabilities needed for effective execution.

We focus on the critical and common challenges that governments around the world face and create opportunities for government leaders to learn from successful experiences, innovations and different contexts. Our unique set of global perspectives and best practices is accessible through our research, knowledge, publications and tools. And we offer a forum of experts around the world where exciting new ideas and innovative models for government can be debated, codified and shared.

www.mckinsey.com/mcg